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CITY OF
PALO ALTO

**DRAFT
ENVIRONMENTAL
IMPACT
REPORT**

INSTITUTE OF GOVERNMENTAL
STUDIES

DEC 4 0 1986

UNIVERSITY OF CALIFORNIA

DOWNTOWN STUDY

DECEMBER 1985

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City of Palo Alto

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Community Environment
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December 5, 1985

TO: Distribution List for the Downtown Study DEIR
FROM: Bruce Freeland, Chief Planning Official
SUBJECT: PUBLIC REVIEW AND COMMENT ON THE DOWNTOWN STUDY DEIR

This document is the draft of the Environmental Impact Report (EIR) for the Downtown Study strategies. A public hearing on the adequacy of this document will be held by the Palo Alto Planning Commission on Wednesday, January 8, 1986. The public comment period for this document will end on January 20, 1986. Comments may be submitted in writing to the address listed below prior to January 20, 1986 or in person at the public hearing on January 8, 1986.

After the public hearing, staff will prepare and publish a document titled "Summary of Comments and Responses," which will contain a summary of all relevant comments on this Draft EIR received during the public comment period as well as responses to those comments. It may also specify changes to this Draft EIR.

The Draft EIR together with the Summary of Comments and Responses document will be the Final EIR. The Final EIR will be considered by the City Council in an advertised public meeting in February or March, 1986. Only if the City Council certifies that Final EIR was completed in compliance with the provisions of the California Environmental Quality Act (CEQA) and that the Final EIR was reviewed and considered will Downtown Study be considered for approval.

After certification, staff will modify the Draft EIR as specified by the Comments and Responses document and print both documents in a single document called the Downtown Study Final Environment Impact Report. Public agencies on the distribution list will automatically receive a copy of the Final EIR. Copies will be available for inspection by members of the public in the Department of Planning and Community Environment.

Submit written comments to:

Chief Planning Official
Department of Planning and
Community Environment
City of Palo Alto
P.O. Box 10250
Palo Alto, CA 94303

For further information, contact George Zimmerman (415) 329-2561 or Steve Olsen (415) 329-2679.

DOWNTOWN STUDY

DRAFT

ENVIRONMENTAL IMPACT REPORT

SCH# 85072302

Prepared for the

City of Palo Alto

by the

Department of Planning and

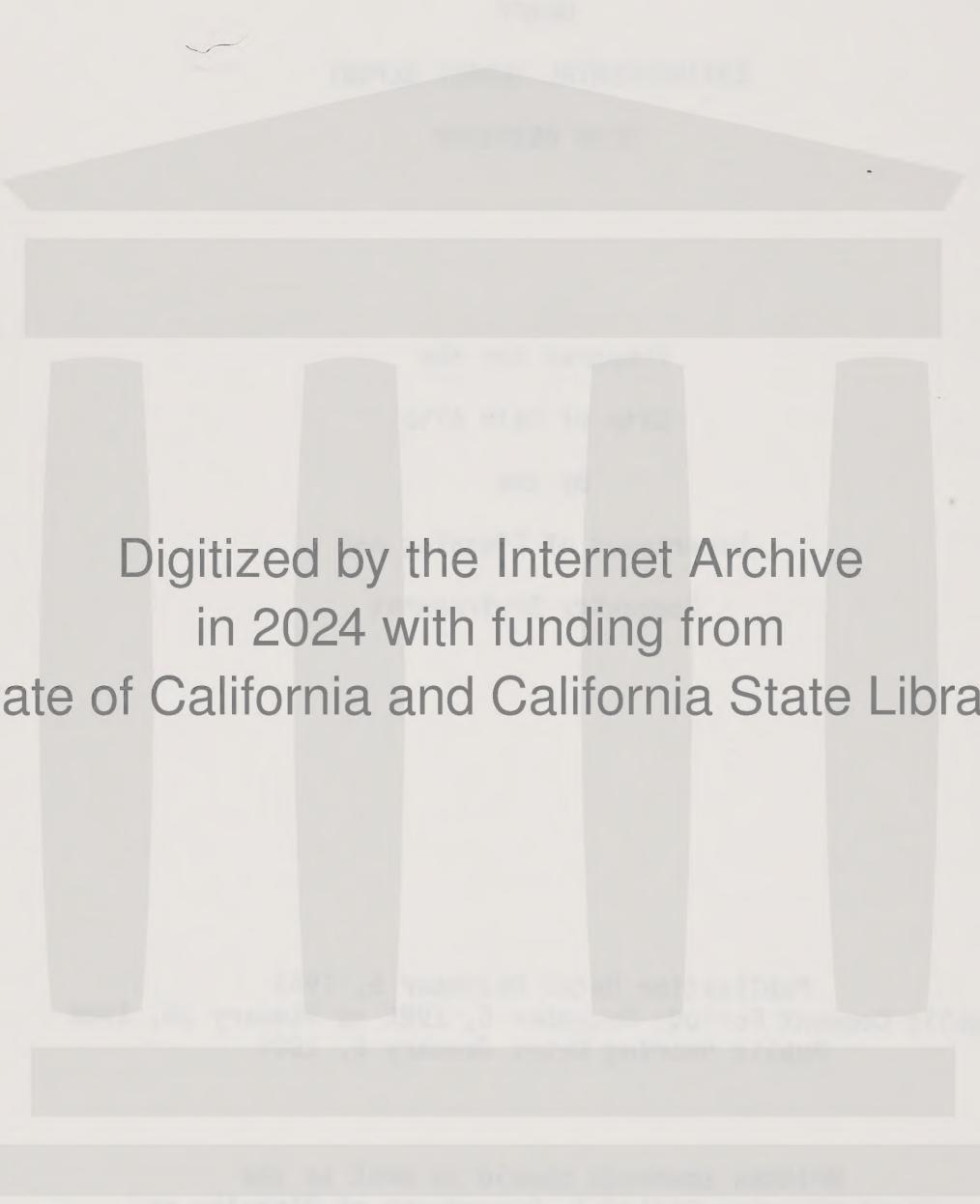
Community Environment

Publication Date: December 5, 1985

Public Comment Period: December 6, 1985 to January 20, 1986

Public Hearing Date: January 8, 1986

Written comments should be sent to the
Chief Planning Official, Department of Planning and
Community Environment, 250 Hamilton Avenue, Palo Alto, CA 94301



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SECTION I

INTRODUCTION

A. TYPE OF DOCUMENT

This is an Environmental Impact Report (EIR) prepared by the City of Palo Alto in compliance with the California Environmental Quality Act (CEQA) of 1970 as amended, and State and local implementing guidelines. This EIR constitutes a focused, Program EIR, pursuant to Sections 15143 and 15168 of the CEQA Guidelines and Section 21094 of the Public Resources Code.

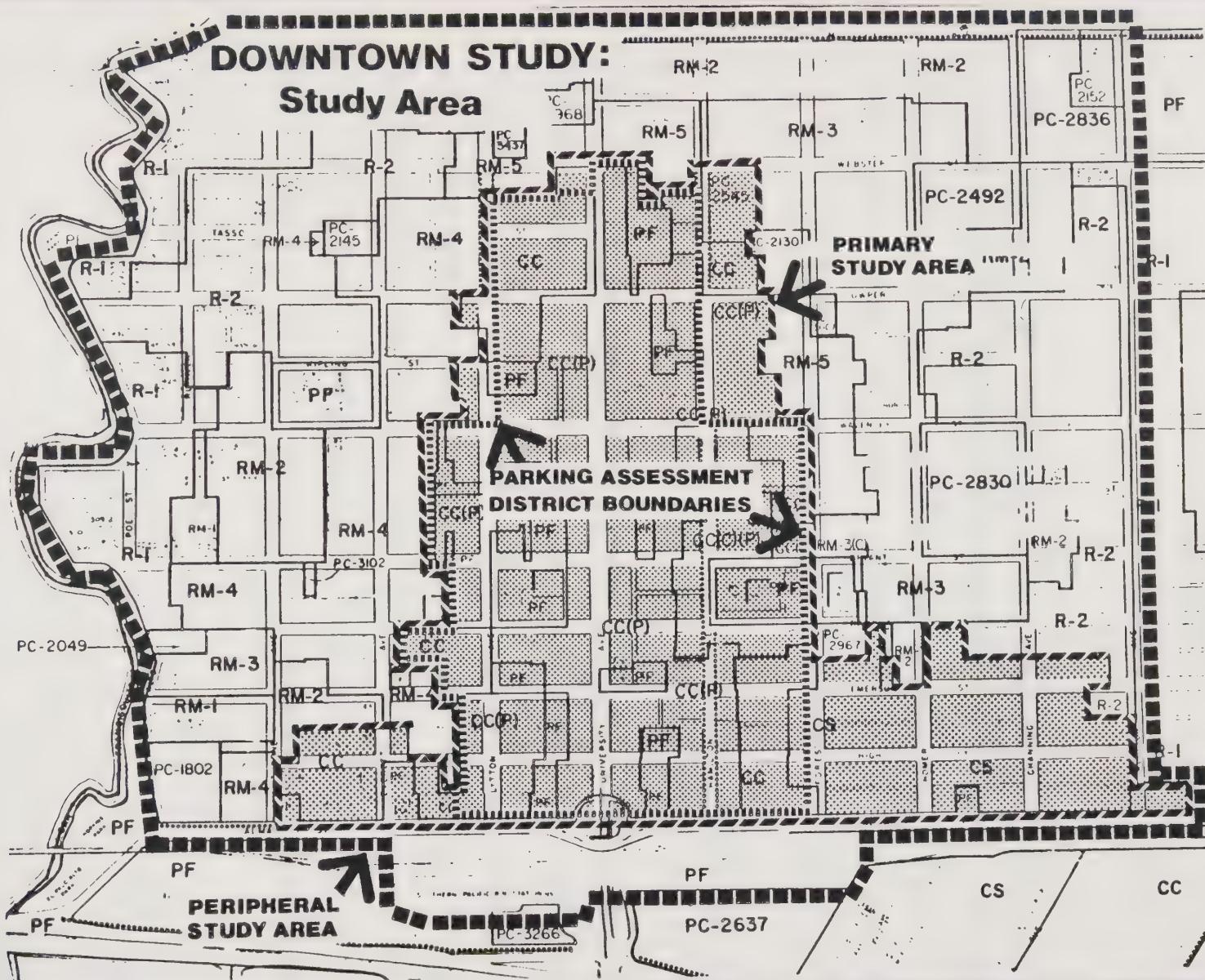
B. PROJECT UNDER REVIEW

The project under review in this EIR consists of proposed amendments to the Comprehensive Plan, the establishment and application of amended zoning ordinance provisions to properties within the Downtown Study Area, the establishment of annual growth controls on commercial development within the Downtown Study Area, and the initiation of new programs dealing with parking provisions, traffic, historic preservation, and neighborhood protection. The project proposals apply primarily to the Primary Study Area identified in Map 1.

C. DOWNTOWN STUDY

1. Background

The pace of development activity in Downtown Palo Alto soared in the first half



I. Introduction

of the 1980's at a rate approaching the previous peak of development activity, which occurred between 1968 and 1970 when approximately 375,000 square feet of floor area was approved in commercial and public projects (City Hall) within the Downtown Primary Study Area (See Map 1). In this recent period of Downtown building activity, over 470,000 square feet of additional floor area (net increase over existing) was approved for commercial projects in the five years between 1980 and 1984. Including the residential component of the Lot Q mixed use development, total approved development in this period was over 500,000 square feet. By way of comparison, the nine year period between 1971 and 1979 produced a net increase of only about 120,000 square feet of floor area in new commercial projects.

This dynamic growth recreated a vitality of Downtown Palo Alto which had been lost after the opening of the Stanford Shopping Center, almost thirty years earlier. However, along with the benefits of this recent growth came some problems and some undesired effects that aroused concern within the community.

Parking deficits continued to increase since private on-site parking was not required of new buildings located in the Downtown Parking Assessment District. Historically, developments in the Assessment District voluntarily constructed an average of only 30 percent of the parking that would otherwise have been required for such development outside the district and -prior to completion of the Lot J garage in October, 1985 - the Assessment District had added only a small number of new public parking spaces since the early seventies. Thus, by mid-1984, the Downtown parking deficit reached 1,220 cars. This exacerbating

I. Introduction

trend resulted in employees parking deeper and deeper into adjacent neighborhoods, or using short-term spaces otherwise intended to shoppers.

Congestion Downtown continued to increase, caused by both Downtown Palo Alto traffic and by through traffic going to and from other locations, generally outside the City's boundaries. Concerns in the community arose regarding the increased level of traffic that was being generated by the recently approved projects in Downtown Palo Alto. This was one source of Downtown traffic that could be addressed by the City.

Residents of nearby neighborhoods also expressed concern over the compatibility of some commercial projects, in terms of scale, design and use, that were being constructed on sites near their neighborhoods.

2. City Council Action

The first in a series of City Council actions that addressed effects of this Downtown development activity occurred on February 16, 1984, when the City Council approved an interim parking ordinance for new development in the Downtown Parking Assessment District. This ordinance required new projects to provide most of the private on-site parking that new development outside of the Assessment District had historically been required to provide.

On March 19, 1984, the City Council approved a work program for a Downtown Study that addressed the interrelated issues of growth, parking, traffic, and

I. Introduction

neighborhood protection. In approving the Downtown Study work program, the City Council also approved formation of a Study Committee to develop ideas and suggestions during each of three key phases of the study. (See Appendix for a list of Downtown Study Committee members.)

On August 27, 1984, the City Council, endorsed a set of goals for the study that were developed by the Study Committee and recommended by the Planning Commission.

On September 18, 1984, the City Council approved a one-year moratorium on new development and on ground floor conversions from non-office to office-type uses within the study area.

On June 18, 1985, the City Council approved a package of Downtown Study strategies and alternatives on growth, land use, parking, traffic and neighborhood protection for a focused Environmental Impact Report (EIR) evaluation. These strategies were developed by the Study Committee and modified by the Planning Commission before being transmitted to the City Council for final action.

On July 22, 1985, the City Council approved extensions of the Downtown moratorium and the interim parking ordinance until May 28, 1986, in order to permit sufficient time to prepare the focused EIR on the Downtown Study, have it reviewed and certified, and have new ordinances on growth, land use, and parking for the Downtown Study area ready for implementation.

D. FOCUS OF THE EIR

The focus of this EIR will be on soils and seismicity, air quality, drainage, noise, light and glare, land use, energy consumption, population and housing, and transportation, circulation and parking. These topics were identified in the Initial Study as having potentially significant effects. Other topics which will also be included are economic and fiscal effects, public services visual effects, and effects on historic buildings.

E. INTENDED USE OF THE EIR

This EIR has been prepared to inform the public about the significant environmental effects of the project; to identify possible ways to minimize the significant effects and to describe reasonable alternatives to the project.

The EIR is intended for use by the Palo Alto Planning Commission, City Council, and local citizens, in evaluating the project's impacts on the environment and consideration of project alternatives and mitigation measures, prior to taking action on the project. This EIR is also for use by the City of Menlo Park and the California State Transportation Department (Caltrans) in evaluating the impacts of the project on their roadways, and by other jurisdictions and organizations, including Santa Clara County and Stanford University, as a resource document.

Initially, this EIR will be used in the evaluation of the proposed comprehen-

I. Introduction

sive plan, zoning, and growth control proposals and in the development of the programs included in the project. This report is also intended for use as a reference document by the City staff, Planning Commission, City Council, and Architectural Review Board in evaluating future development applications within the Downtown Study Area, and in preparing any future environmental assessments which may be necessary on future development projects in the Downtown.

Pursuant to the provisions of CEQA Guidelines Section 15168, and Section 21094 of the Public Resources Code, this is a program EIR prepared on a series of proposed actions related geographically and as logical parts in a chain of actions. Preparing a program EIR allows the City to consider broad policy alternatives and program-wide mitigation measures at an early time when the City has greater flexibility to deal with basic problems. If the impacts of future development projects are considered to be sufficiently covered by the analysis in this EIR, no further environmental work will be necessary. If some areas are not adequately addressed, further environmental analysis will be done, but will be limited to those areas not covered in this EIR.

SECTION II

SUMMARY

A. PROPOSAL OF STUDY

In March, 1984, the City of Palo Alto initiated a planning study of the commercial and peripheral residential areas of Downtown Palo Alto. The planning study and EIR analyze the increased parking and traffic problems that were occurring in the Downtown area while development activity was continuing at the highest rate in over a decade. The purpose of the study is to analyze and propose solutions to these problems while preserving both the vitality of the Downtown business district and the special qualities of the adjacent residential neighborhoods located to the north and south of the commercial business district.

B. PROJECT AND ALTERNATIVES UNDER REVIEW

The project under review in this EIR consists of proposed amendments to the Comprehensive Plan, establishment and application of new and amended zoning regulations to properties within the Study Area, the establishment of annual growth controls on commercial development within the Study Area and the initiation of new programs dealing with parking, traffic, historic preservation and neighborhood protection.

II. Summary

The Project, which includes annual commercial growth limits ranging from 0 to 50,000 square feet for 7 years, has been considered and evaluated in depth. In addition, three alternative commercial growth proposals, ranging from 17,500 square feet annually for 10 years to 70,000 square feet annually for 7 years (and including an alternative that would limit commercial growth by reducing the maximum floor area ratio to a level allowing approximately 10 percent additional growth) were also elevated along with a No Project Alternative (i.e., no changes to current regulations). The purpose of considering these alternatives is to evaluate a reasonable range of development, parking and traffic policies for the Study Area. Such an evaluation, in turn, should assist in the selection of suitable development levels, zoning designations and other programs for implementation in the Study Area.

For the purpose of this EIR, the Project and Alternatives 2, 3 and 4 are evaluated for the "maximum" development that could occur between the present time and 1995. The No Project Alternative (Alternative 5) is evaluated for the "expected" development that could occur between the present time and 1995. "Expected" development assumes recent 1980-1985 Downtown development trends would continue until 1995.

The following table shows the maximum additional commercial development and the expected additional housing that could occur under the Project and the Alternatives.

II. Summary

Table 1

Downtown Study Area
Project and Alternative
Maximum Development/Expected Housing

CHARACTERISTICS	Proposed Project		ALTERNATIVES			
	1A	1B	2	3	4	5
	LOW RANGE	HIGH RANGE	17,500 FT./YR.	70,000 FT./YR.	REDUCED FAR	NO PROJECT
Annual Growth Limit						
a) Square feet per year	Ø	50,000	17,500	70,000	N/A	N/A
b) Period under study (yrs)	7	7	10	7	10	10
c) Square feet in period of limitation	Ø	350,000	175,000	490,000	N/A	N/A
Expansion Exemptions During Period under Study	20,000 to 50,000	20,000 to 50,000	20,000 to 50,000	20,000 to 50,000	N/A	N/A
Total Commercial Development: Period under Study	50,000	400,000	225,000	540,000	370,000	1,100,000
Additional Housing Units: (1) Period under Study	500	500	500	500	500(2)	500(2)
Primary Study Area	250	250	250	250	250(2)	250
Peripheral Study Area						
TOTAL	750	750	750	750	750	750(2)

N/A = No applicable.

(1) Estimated by 1995.

(2) Included in traffic analysis for "worstcase" forecast.

Table 2

SUMMARY OF IMPACTS AND MITIGATIONS
Soil and Seismicity

TOPIC	PROJECT/ALTERNATIVE	IMPACT	Significant Impacts = ●
			MITIGATION
B. SOIL AND SEISMICITY	Project and All Alternatives: Growth, Housing and Parking	<p>Development from growth and on-site parking proposals could result in excavation ranging from 102,000 to 292,400 cubic yards. (Amount of soil displaced is roughly proportional to floor area allowed and parking spaces required.)</p> <p>Excavation leads to soil erosion, soiling of adjacent streets, and problems in locating suitable receiver sites for excavated soil.</p> <p>Commercial and residential growth in Downtown (an area of moderate seismic risk) could expose more people to seismic risk. However, such risk is modified by new development conforming to more adequate building codes.</p>	<ul style="list-style-type: none"> ○ Reduce amount of growth allowed. (Results in less disturbance to the soil and potential for erosion.) ○ Compliance with Uniform Building Code requirements should assure development under growth and parking proposals does not result in increased exposure to seismic hazards. ○ Proposed seismic ordinance requiring structural inspections will not reduce risk but it may encourage upgrading of existing buildings and inform the public where potential risks are.

Table 2

SUMMARY OF IMPACTS AND MITIGATIONS
Air Quality

Page 1 of 2

Significant Impact = ●

TOPIC	PROJECT/ALTERNATIVE	IMPACT	MITIGATION
C. AIR QUALITY	Project and All Alternatives	<p>Dust generated during construction.</p> <ul style="list-style-type: none"> ● Increased motor vehicle emissions. ● Under currently worst case conditions when approved projects completed, State and Federal 8 hour CO standard would be exceeded at El Camino/Alma, at University/El Camino/Alma and at University and High. ● the State 1 hour average for CO is expected to be exceeded at El Camino/Alma and University/El Camino/Alma intersections. ● In 1995, 8 hour CO standard would be exceeded at El Camino/Alma and University/El Camino/Alma due to traffic. 	<p>○ Frequent watering of exposed surfaces.</p> <p>○ Application of erosion control measures including replanting and spreading soil binders.</p> <p>○ Continued State enforcement of the new vehicle emission standards should reduce levels of CO and other pollutants substantially by 1995.</p> <p>○ Approve proposed and expand existing measures to reduce growth in vehicular trips including: 1) reducing growth potential; 2) providing incentives for low traffic generating uses e.g., housing; and 3) studying and implementing Transportation Systems Management (TSM) mechanism to reduce single person vehicular trips.</p>

Table 2

SUMMARY OF IMPACTS AND MITIGATIONS
Air Quality

Page 2 of 2

Significant Impacts = ●

TOPIC	PROJECT/ALTERNATIVE	IMPACT	MITIGATION
C. AIR QUALITY	Project and All Alternatives	<ul style="list-style-type: none"> ● 1995 hydrocarbons, nitrogen oxides and TSP emissions deemed significant under "Best Available Control Technology" (BACT) guidelines. 	<ul style="list-style-type: none"> ○ Approve and implement parking proposals including 8 point program to improve efficiency of existing supply and future requirement for on-site parking. ○ Study and implement circulation improvement proposals which would not expand existing capacity but would improve efficiency of existing street system.

Table 2

SUMMARY OF IMPACTS AND MITIGATIONS
Drainage

Significant Impacts = ●

TOPIC	PROJECT/ALTERNATIVE	IMPACT	MITIGATION
D. DRAINAGE	Project and Alternatives 2, 3 and 4: Growth and Parking	<ul style="list-style-type: none"> ● Below grade construction for on-site or public parking that requires pumping could adversely affect capacity of storm drain system. Most development would be subject to flooding in 100-500 year storm. 	<ul style="list-style-type: none"> ○ Prohibit all sub-surface parking construction which requires regular pumping of sub-soil water. ○ Recommend floor slabs be set no less than one foot above existing ground levels

Table 2

SUMMARY OF IMPACTS AND MITIGATIONS
Noise

TOPIC	PROJECT/ALTERNATIVE	IMPACT	MITIGATION
E. NOISE	Project and All Alternatives: Growth, Housing and Land Use	<p>Following apply in 1995 with or without the Project or the Alternatives.</p> <ul style="list-style-type: none"> ● Noise levels will be up to 5 dBA in excess of acceptable range for residential uses (65 dBA) along Lytton, Hamilton and University Avenue (all west of Middlefield) and on Middlefield Road and on Alma Street) ● Noise levels at Lytton Gardens (Middlefield side) will be 2 dBA over 65 dBA limit. ● Noise levels at Lytton Gardens (University Avenue side) will be 1 dBA over 65 dBA limit. ● Noise levels near Infill housing on Alma will be 4 dBA over 65 dBA limit. 	<p>0 Any combination of recommended measures to achieve a 20-25 dBA reduction in interior noise levels.</p> <p>0 Application of following measures to achieve a dBA reduction in exterior noise levels:</p> <ol style="list-style-type: none"> 1) using non-sensitive site areas as buffers for more sensitive site areas; 2) increasing building setbacks; 3) constructing noise barriers such as walls berms, solid wood fences, solid decks and solid deck railings. (A 6 foot high noise barrier gives exterior noise at first floor levels)

Table 2

SUMMARY OF IMPACTS AND MITIGATIONS
Light and Glare

Significant Impacts = 0

TOPIC	PROJECT/ALTERNATIVE	IMPACT	MITIGATION
F. LIGHT AND GLARE	Project and Alternatives	No direct adverse environmental effect from light and glare.	0 Not required.

Table 2

SUMMARY OF IMPACTS AND MITIGATIONS
Land Use

TOPIC	PROJECT/ALTERNATIVE	IMPACT	Significant Impacts = 0
			MITIGATION
G. LAND USE AND DEVELOPMENT LEVEL	Project (Low Range and High Range): Growth and Housing Proposals	Additional commercial development by 1995 between 50,000 sq.ft. (including expansion exemptions) and 400,000 sq.ft. (also including expansion exemption) and 500 additional housing units (within Primary Study Area).	0 Not required.
	Alternative 2, 3 and 4: Growth and Housing Proposals	Additional commercial development by 1995 between 225,000 sq.ft. (including expansion exemptions) and 540,000 sq.ft. (including expansions) and 500 additional housing units.	0 Not required.
	Alternative 5 (No Project): Growth	Additional commercial development by 1995 of 1,100,000 sq.ft.	0 The Project or other alternatives.
	Project and Alternatives 2, 3 and 4 (Retail Provision):	Potential expansion of retail and retail-related uses could increase traffic and parking demand.	0 See Traffic and Parking Project proposals and mitigations.

Table 2
SUMMARY OF IMPACTS AND MITIGATIONS
Energy Consumption

TOPIC	PROJECT/ALTERNATIVE	IMPACT	Significant Impacts = 0
			MITIGATION
H. ENERGY CONSUMPTION	Project and Alternatives: Growth and Housing	<p>Increased demand for electricity and gas.</p> <p>Increased demand for power could result in need for supplemental power purchased from PG&E at high cost.</p> <p>Increased power demand is proportionate to the level of growth permitted in the Project and Alternatives.</p>	<p>0 All new development is subject to energy conservation standards of Title 24 of the California Administrative Code.</p> <p>0 City will continue to require other energy conservation measures in new projects e.g., solar or vapor heating systems, where it is practical to install such systems.</p> <p>0 Energy conservation measures e.g., use of natural ventilation and modification of operational schedules away from peak use, are recommended for new development.</p>

Table 2

SUMMARY OF IMPACTS AND MITIGATIONS
Population and Housing

Page 1 of 3

Significant Impacts = 0

TOPIC	PROJECT/ALTERNATIVE	IMPACT	MITIGATION
I. POPULATION AND HOUSING	Project and Alternative 2: Growth and Housing	<p>Housing demand generated by the Project (0 annual growth, 32 units and 50,00 sq.ft. annual growth, 587 units) and by Alternative 2 (310 units) should be met by expected housing (500 units) resulting from exemption of housing from growth and project size limits and incentives provided in Alternative 2.</p>	<p>0 No mitigations necessary to offset jobs/housing imbalance except for Alternative 5 (No Project) which is continuation of current zoning.</p>
	Alternative 3: Growth and Housing	<p>Growth expected under Alternative 3 could possibly add to the jobs/housing imbalance (projected housing demand of 810 units versus expected housing of 500 units).</p>	

Table 2

SUMMARY OF IMPACTS AND MITIGATIONS
Population and Housing

Page 2 of 3

Significant Impacts = 0

TOPIC	PROJECT/ALTERNATIVE	IMPACT	MITIGATION
I. POPULATION AND HOUSING	<p>Project and Alternative 5 (No Project)</p> <p>Project and Alternatives 2,3 and 4: Project Size Limits and Housing</p>	<p>Growth expected under Alternative 5 could substantially add to the jobs housing imbalance (demand of 1,746 units versus an unknown number of housing units provided)</p> <p>Provision of BMR units may be less than otherwise expected because:</p> <ol style="list-style-type: none"> 1) if much of the new housing built is in projects of less than 10 units, no BMR units are required; 2) of the improbability of many commercial projects exceeding 20,000 sq.ft. in size and thus becoming subject to the requirements of the housing mitigation ordinance; and 3) of the absence of BMR incentives in the Project and Alternative housing proposals. 	<p>0 No mitigations necessary to offset jobs/housing imbalance except for Alternative 5 (No Project) which is continuation of current zoning.</p> <p>0 Continue City's BMR program and housing impact ordinance.</p> <p>0 Consider a BMR incentive for Study Area, e.g., greater total floor area for housing if BMR units are provided.</p>

Table 2

SUMMARY OF IMPACTS AND MITIGATIONS
Population and Housing

Page 3 of 3

Significant Impacts = 0

TOPIC	PROJECT/ALTERNATIVE	IMPACT	MITIGATION
I. POPULATION AND HOUSING	Project and Alternative 4 and 5: Residential to Commercial Conversion	Potential displacement of rental housing could occur through conversion of existing rental housing to commercial use.	<p>0 Count conversion of rental residential space to commercial in annual growth allocation. In rating system, give projects not displacing existing rental residential higher ratings.</p> <p>0 Prohibit conversion of rental housing to commercial unless owner cannot make a reasonable return on housing investment.</p>

Table 2

SUMMARY OF IMPACTS AND MITIGATIONS
Transportation, Circulation and Parking

Page 1 of 2

Significant Impacts = 0

TOPIC	PROJECT/ALTERNATIVE	IMPACT	MITIGATION
J. TRAFFIC CIRCULATION AND PARKING	Project (Lower Limit):	<ul style="list-style-type: none"> ● Intersections impacted by the Project 1995 to Levels of Service (LOS) below acceptable levels i.e., LOS E or F. (includes regional traffic): ● 1. Middlefield/Willow (E/F) 	<ul style="list-style-type: none"> 0 At University and Middlefield add a second through westbound lane, by either prohibiting westbound LT or or widening University eastbound departure by one lane.
	Alternative 2:	<ul style="list-style-type: none"> ● 1. Middlefield/Willow (E/F) 	<ul style="list-style-type: none"> 0 At University and Guinda prohibit parking on University westbound and Guinda northbound within 140 feet of intersection. This mitigation is recommended even though operation of this intersection is acceptable (D/E) for the Project (Upper) and Alternative 4.
	Project (Upper Limit) and Alternative 4:	<ul style="list-style-type: none"> ● 1. Middlefield/University (E) ● 2. Middlefield/Willow (F) 	<ul style="list-style-type: none"> 0 At Middlefield and Willow restripe westbound approach from 3 to 4 lanes and lengthen northbound RT on Middlefield.

Table 2

SUMMARY OF IMPACTS AND MITIGATIONS
Transportation, Circulation and Parking

Page 2 of 2

Significant Impacts = ●

TOPIC	PROJECT/ALTERNATIVE	IMPACT	MITIGATION
J. TRAFFIC CIRCULATION AND PARKING	Alternative 3:	<ul style="list-style-type: none"> ● 1. Middlefield/University (E) ● 2. Middlefield/Willow (F) 	<p>0 Following Project proposals are mitigations for cumulative traffic, circulation and parking impacts of the Project and regional through traffic:</p>
	Alternative 5 (No Project):	<ul style="list-style-type: none"> ● 1. E1 Camino/University (E) ● 2. Middlefield/University (E/F) ● 3. Alma/Hamilton (F) ● 4. Alma/Lytton (E) ● 5. University/Guinda (F) ● 6. Middlefield/Willow (F) 	<ol style="list-style-type: none"> 1. Reduce development potential. 2. Develop incentive program to reduce drive alone trips. 3. Maximize incentives for low traffic generating uses. 4. Discourage regional through traffic. 5. Adopt "eight-point" public parking program.
	Project (Lower and Upper Limit) and Alternatives 2, 3 and 4	<ul style="list-style-type: none"> ● Project as proposed would reduce deficit by 154 spaces. 	<p>0 Parking proposals of Project and Alternatives would decrease existing parking deficit by 154 spaces. Additional garage(s) will provide a net increase of 308 parking spaces. No further mitigation for parking impacts are necessary or recommended.</p>
	Alternative 5 (No Project) (No on-site parking requirements)	<ul style="list-style-type: none"> ● Alternative 5 would increase parking deficit by 1922 spaces. 	
	Alternatives 1.a.1 (Purchase of vacant lots for parking)	<ul style="list-style-type: none"> ● If pursued instead of proposed project, results in an increase in parking deficit of 125 spaces. 	

Table 2

SUMMARY OF IMPACTS AND MITIGATIONS
Economic & Fiscal

TOPIC	PROJECT/ALTERNATIVE	IMPACT	Significant Impacts = 0
			MITIGATION
K. ECONOMIC AND FISCAL	Project, Alternatives 2, 3 and 4: Growth, Parking and Retail	<p>Annual growth limit and on-site parking will limit commercial development until rents increase over 30 percent.</p> <p>Project size limits will maintain a desirable "smaller scale feel."</p> <p>Additional parking structure should have positive effect on retail sales and bonding capacity.</p> <p>Ground floor retail provision may reduce displacement of rent-sensitive neighborhood serving uses. Retail expansion may not occur because of difficulty in reverting back to non-retail.</p>	0 No mitigation is necessary because little physical change is expected.

Table 2
SUMMARY OF IMPACTS AND MITIGATIONS
Public Services and Utilities

TOPIC	PROJECT/ALTERNATIVE	IMPACT	Significant Impacts = 0
			MITIGATION
L. PUBLIC SERVICES AND UTILITIES	Project and Alternatives 2, 3 and 4: Growth	<p>Added development results in increased demand for all public services.</p> <p>New development increases generation of sewage and garbage.</p> <p>New development results in increased consumption of gas, electricity and water.</p> <p>The high range Project (50,000 sq.ft.) and higher growth Alternatives (3, 4 and 5) may require study and improvement of existing electric, gas and water distribution systems serving the Downtown Area.</p>	<p>0 Project and Alternative 2, 3 and 4 growth limits will reduce growth potential in demand for public services and utility needs over what otherwise would occur under the No Project Alternative.</p> <p>0 Extend City's waste reduction and recycling programs to new development in Study Area.</p> <p>0 Costs incurred from distribution system improvements should be assumed by users.</p> <p>0 No additional mitigations necessary for utility services or for police or fire protection.</p>

Table 2

SUMMARY OF IMPACTS AND MITIGATIONS
Visual and Historic

Page 1 of 2

Significant Impacts =

TOPIC	PROJECT/ALTERNATIVE	IMPACT	MITIGATION
M. VISUAL	Project and Alternatives 2, 3 and 4: Growth	<p>Fewer opportunities for new public plazas and other pedestrian amenities provided by new development.</p> <p>Value of existing buildings could increase which may encourage rehabilitation of older buildings.</p> <p>Rehabilitation could be hindered by limits to building expansion needed to amortize rehabilitation costs.</p>	0 City could develop an urban design plan.
	Project and Alternatives 2 and 3: Project Size Limits	<p>Effects on quality of building design cannot be determined.</p> <p>New development will be more in scale with existing development.</p>	

Table 2

SUMMARY OF IMPACTS AND MITIGATIONS
Visual and Historic

Page 2 of 2

Significant Impacts = 0

TOPIC	PROJECT/ALTERNATIVE	IMPACT	MITIGATION
M. HISTORIC	Project and Alternatives 2, 3 and 4: Growth	<p>Less demolition for new construction, a positive effect for preserving historic buildings.</p> <p>Building replacement is not prohibited, a negative effect in preserving historic buildings.</p>	<ul style="list-style-type: none"> 0 To consider implementation of historic preservation proposals, assign creation of significant structures overlay zone and related programs to staff and Historic Resources Board. 0 If an annual growth allocation is selected, develop a rating system with incentives for preservation or restoration of historic structures.
	Project and Alternatives 2, 3 and 4: Historic Preservation	<p>Density transfer proposals could result in larger buildings on "receiver sites" than what could result under the Project and Alternative size limits and proposed FARS.</p>	<ul style="list-style-type: none"> 0 Develop Downtown design guidelines to protect historic buildings from incompatible design.

C. SIGNIFICANT EFFECTS

1. Traffic

The analysis of traffic impacts shows that even without additional development in the study area above what is already approved, PM peak hour level of service at one of the eleven intersections assessed will reach an unacceptable "E/F" level by 1995. The No Project alternative, allowing continuation of recent growth rates in the study area, would worsen six of the eleven intersections to unacceptable "E" or worse PM peak levels of service. By contrast, implementation of the project, or its alternatives (other than "No Project") would significantly worsen the PM peak hour service level at three intersections to unacceptable "E" level of service by 1995. Feasible traffic engineering measures are proposed in this report to mitigate the project impacts at all three intersections to acceptable levels of service during the PM peak.

2. Air Quality

In addition to traffic problems, air quality problems are predicted in the Study Area. The Air Quality analysis shows that violations of State and Federal carbon monoxide (CO) standards may occur under worst case conditions when currently approved projects are completed. While the situation is expected to improve in the future regardless of Study Area development, maximum development under the Project or under the alternatives will nonetheless

contribute to a deterioration in air quality (CO) beyond what expected levels would otherwise be without such development. This deterioration is also expected to occur with regard to other types of air pollution emissions. Recommended mitigation measures may reduce pollutant levels below those predicted. However, these measures may not be sufficient to reduce cumulative air quality impacts to acceptable levels for all portions of the Study Area.

See Section VII on Significant Unavoidable Adverse Impacts.

3. Noise

Existing acceptable exterior noise levels for commercial development are exceeded in one street segment included in the EIR analysis. Noise levels are expected to increase along other street segments with or without development from the Project or alternatives but not to unacceptable levels.

Additionally, existing exterior noise levels already exceed acceptable standards for residential development on most streets included in the analysis and additional deterioration is expected from regional traffic as well as traffic generated from development under the Project or the alternatives.

Growth reduction under the Project and the alternatives provides some mitigation. However, additional interior and exterior noise mitigation measures are necessary for residential development in the Study Area.

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4. Drainage

The Project parking proposal that all new development provide 100 percent of its parking could encourage developers to build deep underground garages. Generally, if such underground structures go below two levels they will penetrate the water table and require constant pumping of sub-soil water. Since the storm sewer system serving the study area is significantly undersized at present, such pumping would be a significant adverse impact. To mitigate this potential impact of the Project, a prohibition is recommended against all sub-surface parking construction which requires regular pumping of sub-soil water.

D. AREAS OF CONTROVERSY

The traffic analysis shows that a substantial amount of traffic in the Study Area is generated outside the Study Area. The question is whether restricting future Downtown development is an appropriate solution to Citywide and regional problems. One response is that the problem is currently being addressed on a Citywide basis and through local area studies such as the Downtown Study. Alternatively, the City could withhold action on the Downtown Study until findings from the recently initiated Citywide Land Use and Transportation Study are evaluated.

Another concern is that too great a weight is placed on the environmental effects of Downtown growth versus the economic benefits an economically healthy

Downtown provides. Proponents of the Study's recommended growth reduction and parking measures argue that these measures are not intended to reduce the current vitality and that they will be beneficial to the economic health of Downtown in the long run.

The ground floor retail provision proposed for the University Avenue corridor has been cited as not being necessary or as possibly discouraging owners from leasing to retail uses where they currently have office tenants. Others have stated that while retail uses may not be threatened by displacement at the present time, such a provision provides assurance that retail activity will continue over the long run. Proponents of the measure also have suggested provisions to minimize economic hardship.

The Study proposal for additional parking in one or more new structures raises concerns regarding whether parking structures are aesthetically appropriate for the Downtown Area, whether they would be used if not centrally located and whether it is equitable for current property owners to assume a portion of the construction and operating costs of a new structure.

The proposed housing incentives have been questioned as to whether any type of additional development in Downtown is appropriate when there are existing traffic problems and whether promotion of new housing is appropriate in a district that is essentially commercial in character. Advocates of the housing measures argue that: 1) the jobs/housing imbalance should not worsen through additional commercial development in the Downtown Area; 2) traffic generated by

II. Summary

housing is much lower than what comparable amounts of commercial development would generate; and 3) property owners experiencing substantial reductions in commercial/development potential should be afforded the opportunity to develop housing on their properties.

E. ISSUES TO BE RESOLVED

In taking action on the Project, the decision makers must weigh the benefits of additional development in the Study Area versus the expected air quality impacts. Because the air quality mitigation measures, identified as being reasonably feasible, are not sufficient to reduce all the air quality impacts to an acceptable level or eliminate all air quality violations, a Statement of Overriding Considerations in compliance with CEQA Guidelines Section 5093, may be necessary for any approval action taken on the Project.

A Statement of Overriding Considerations is necessary when decision makers believe that the benefits of a project outweigh the unavoidable or unmitigated adverse environmental impacts. Under these circumstances, the project may be considered "acceptable." Such a decision must be supported by specific written findings which are based on information in the Final EIR and/or other information in the public record, and must be made at the time of project approval.

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SECTION III
PROJECT DESCRIPTION

The Project will be the adoption of:

- 1) A Growth control ordinance limiting the rate of commercial development; and
- 2) Comprehensive Plan policies, programs and map designations for Downtown Palo Alto; and
- 3) Zoning regulations for Downtown Palo Alto; and
- 4) Programs to preserve historic structures, improve parking supply, reduce growth in traffic, and improve circulation.

This chapter provides a detailed description of these aspects of the Project (see Table 3).

A. PROJECT LOCATION

The Downtown Study Area is located in the northwest section of the City of Palo Alto.

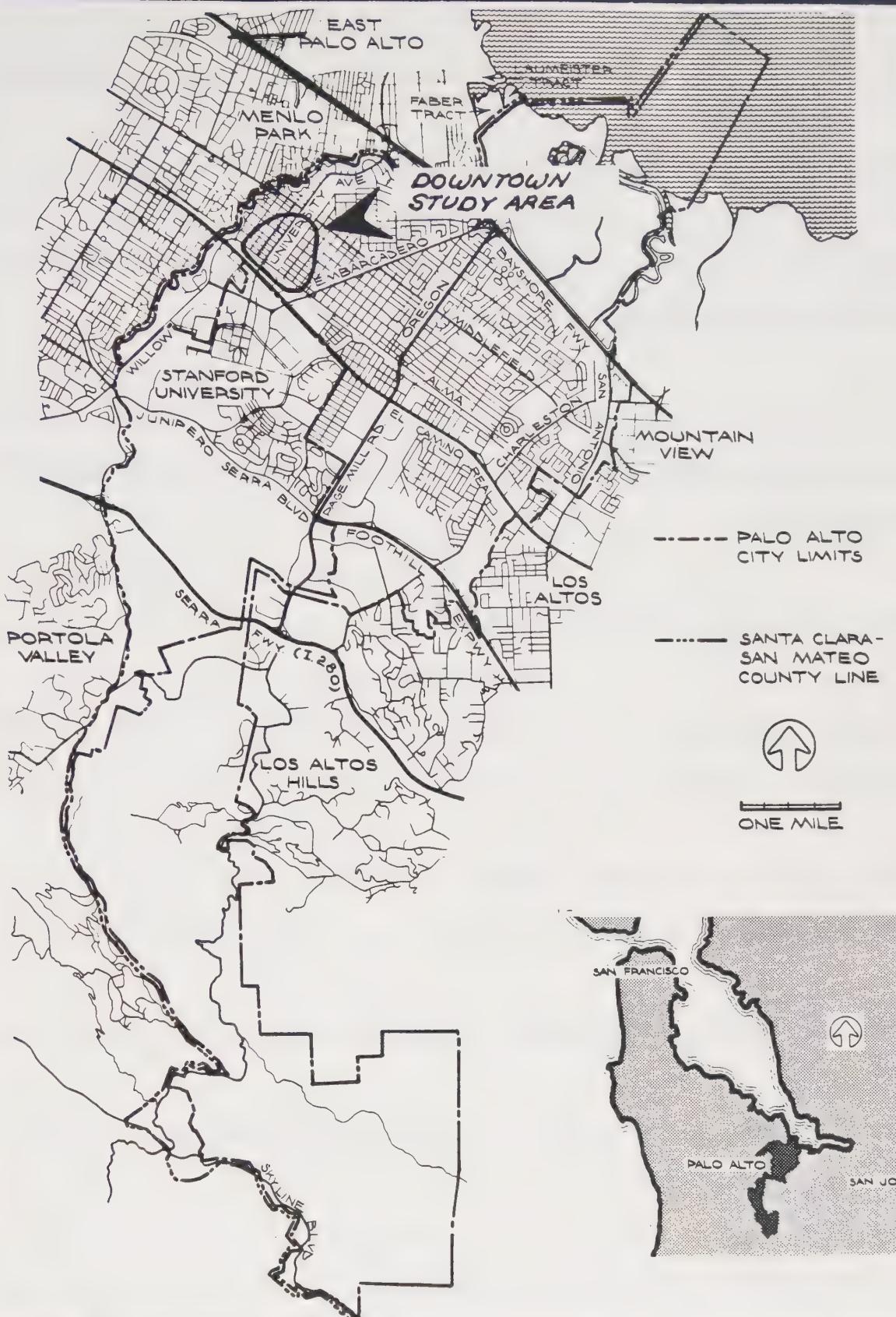
The City of Palo Alto itself is located on the San Francisco peninsula

III. Project Description

approximately 30 miles south of San Francisco and approximately 15 miles northwest of San Jose. The City boundary on the north runs contiguous with the cities of East Palo Alto and Menlo Park and the San Mateo-Santa Clara County boundary along San Francisquito Creek and on the south it borders with Mountain View near San Antonio Road. East to west, the City boundary extends from San Francisco Bay to the Skyline Ridge of the Santa Cruz Mountains. Map 2 indicates the Study Area location in its regional setting.

The northern boundary of the Downtown Study Area (including both the Primary and Peripheral Study Areas) also runs along San Francisquito Creek and the City of Menlo Park and San Mateo County boundaries. The Study Area lies approximately one quarter (0.25) mile east of El Camino Real and the Stanford University campus and is approximately one and one quarter (1.25) miles west of U.S. Highway Route 101 (Bayshore Freeway).

The Primary Study Area for the Downtown Study consists of all commercially zoned and other non-residentially zoned properties within the commercial core of Downtown Palo Alto. It amounts to approximately 130 acres including public rights-of-way. The Peripheral Study Area consists of adjacent residentially zoned areas, and it extends generally from San Francisquito Creek to Addison and from Alma to Middlefield Road. The peripheral study area amounts to approximately 230 acres (see Map 1).



DOWNTOWN STUDY EIR



MAP 2 -- REGIONAL LOCATION MAP

III. Project Description

B. OBJECTIVES OF THE PROJECT

The objectives of the Downtown Study were adopted by the City Council on August 27, 1984, and have been divided into two categories of importance.

Category I objectives relate to the principal issues of the Downtown Study, namely development, parking and traffic. Of these, goal #1 is considered to be of highest importance.

1. Reduce overall build-out potential.
2. Increase the supply of public and private parking for the Downtown Area.
3. Accept the existing parking deficit in the short term, but not allow it to increase.
4. Reduce the parking deficit over the long term.
5. Improve traffic circulation within the physical constraints of the existing street network.
6. Minimize traffic growth in the Downtown Area.
7. Reduce non-neighborhood traffic in adjoining residential areas.

III. Project Description

The following Category II objectives reflect additional issues and concerns, relating to neighborhood protection, variety and vitality, and urban design.

8. Preserve the character and quality of the adjoining residential neighborhoods.
9. Increase the potential for a variety of uses in the Downtown Area.
10. Encourage retail vitality and variety.
11. Promote the economic health of Downtown.
12. Encourage urban design which preserves and enhances a human scale within the Downtown Area.
13. Encourage diversity of design in different parts of the Downtown Area.
14. Enhance the pedestrian environment of the Downtown Area.

C. PROJECT CHARACTERISTICS

On June 18, 1985, the City Council reviewed and approved a package of strategies to be considered the Downtown Study Project and to be evaluated in this Environmental Impact Report (EIR). The strategies which constitute the

III. Project Description

project were originally developed by the Downtown Study Committee and subsequently reviewed and modified by the Planning Commission before they were transmitted to the City Council for additional modification prior to their inclusion in the EIR.

The center piece of the Project is the establishment of an annual limitation on the amount of new commercial construction within the Downtown area. The City Council did not set the exact number of square feet per year which should be evaluated as the proposed project, but specified that it should be in the range of zero new square feet/year to as much as 50,000 square feet for a seven year period. In order to cover this range, the Project shall be described as having a "low range" (0 square feet) and a "high range" (50,000 square feet). Other than the amount of commercial development to be allowed, the Low Range and High Range are identical, and include the characteristics listed in the following summary.

In addition, the Project includes changes to Comprehensive Plan policies, programs and map designations, changes to zoning ordinance regulations and other programs to preserve historic structure, improve parking supply, reduce growth in traffic parking supply, reduce growth in traffic and improve circulation.

These Project characteristics are summarized in the following table and further explained in subsequent paragraphs.

Table 3

SUMMARY OF DOWNTOWN STUDY PROJECT DESCRIPTION

CHARACTERISTIC	1A LOW RANGE	1B HIGH RANGE	ACTION REQUIRED TO IMPLEMENT THE PROPOSAL
1. Annual Commercial Growth Limit a. square feet per year b. period under study (yrs) c. square feet in period of limitation d. unused yearly allocation added to next year's limit e. monitor growth annually	0 7 0 na yes	50,000 7 350,000 yes yes	New Zoning District or Growth Control Ordinance
2. Additional Sq.Ft. Allowed Through Exemptions During Period Under Study a. 10% expansion on sites up to 5,000 sq. ft. b. minor expansions all sites c. handicapped improvements	20,000*	20,000*	New Zoning District or Growth Control Ordinance
3. Total Commercial Development In Period Studied Including Exemptions	20,000 to 50,000	370,000 to 400,000	
4. Maximum Project Size a. vacant sites (sq. ft.) b. redeveloped sites, (sq. ft. net gain on site) c. limit offices in CS zone to 5,000 sq. ft./site	25,000 15,000 yes	25,000 15,000 yes	New/amended Zoning District New/amended Zoning District
5. Commercial Floor Area Ratio a. CC Zone b. CS Zone c. CN Zone	2 to 1 1 to 1 0.5 to 1	2 to 1 1 to 1 0.5 to 1	New/amended Zoning District New/amended Zoning District New/amended Zoning District
6. Rating System To Select Projects Based Upon: a. community benefit	na	yes	New Zoning District or Growth Control Ordinance

*Note: the report will also identify impacts of an exemption of 50,000 square feet.

Table 3

CHARACTERISTIC	1A LOW RANGE	1B HIGH RANGE	ACTION REQUIRED TO IMPLEMENT THE PROPOSAL
7. Housing Incentives	yes	yes	New/amended Zoning District
8. Parking Requirements			
a. new sq. ft. provides 100% of parking need on/off site	yes	yes	Amend Zoning Ordinance
b. commercial requirement at one space/250 sq. ft. in assessment district	yes	yes	Amend Zoning Ordinance
c. in-lieu provision to buy spaces	yes	yes	Amend Zoning Ordinance & Assessment District Project
d. off-site parking rules liberalized	yes	yes	Amend Zoning Ordinance
e. at/above grade parking counted as floor area	yes	yes	Amend Zoning Ordinance
f. vacant sites partly exempt	yes	yes	
9. Public Parking Program			
a. eight point program	yes	yes	Staff Assignment
b. build at least one new parking structure	yes	yes	Assessment District Project
d. consider added structure esp. with a market	yes	yes	Assessment District Project
c. private payments for parking spaces as in-lieu means of providing spaces	yes	yes	Amend Zoning Ordinance & Assessment District Project
e. consider Lots S,L,F for parking/ retail/market proj.	yes	yes	Assessment District Project
f. allow no growth in parking deficit	yes	yes	Comprehensive Plan Policy
10. Retail/Pedestrian Vitality			
a. ground floor use controls in designated retail area	yes	yes	Amend Zoning Ordinance
b. OK where appropriate some commercial uses on sidewalks	yes	yes	Encroachment Policy/Guideline
c. guidelines on driveways crossing sidewalks	yes	yes	Assignment to ARB Leading to Resolution Adopting Guidelines

Table 3

Page 3

CHARACTERISTIC	1A LOW RANGE	1B HIGH RANGE	ACTION REQUIRED TO IMPLEMENT THE PROPOSAL
d. new "P" District guidelines on parking entrance locations.	yes	yes	Assignment to ARB Leading to Resolution Adopting Guidelines
11. Neighborhood Protection			
a. commercial land within 150 ft. of R-1 to RM-4 zone given special controls	yes	yes	New/amended Zoning District
b. strategies on protection from parking intrusion and Downtown traffic	yes	yes	Amend Zoning Ordinance Assessment District Project Staff Assignment Comprehensive Plan Policy
12. Historic Preservation			
a. significant structures overlay zone	yes	yes	New Ordinance
b. density transfer program	yes	yes	New Ordinance and Bond Program
13. Traffic Strategies			
a. limit traffic growth (reduce development potential)	yes	yes	See Growth Limits
b. incentives to reduce "drive alone" trips	yes	yes	Staff Assignment Possibly Leading to Ordinances
c. incentives for low traffic uses (housing)	yes	yes	See Housing Incentives
d. set signals to facilitate pedestrian on University/cars on Lytton, Hamilton	yes	yes	Staff Assignment
e. direct through traffic to Lytton and Hamilton	yes	yes	Staff Assignment
f. gather more data on through traffic	yes	yes	Staff Assignment
g. no new signals on Middlefield north of Lytton or from Channing to Churchill	yes	yes	Comprehensive Plan Policy
give future consideration to Emerson as one way street	yes	yes	Staff Assignment

Table 3

CHARACTERISTIC	1A LOW RANGE	1B HIGH RANGE	ACTION REQUIRED TO IMPLEMENT THE PROPOSAL
i. discourage regional through traffic	yes	yes	Staff Assignment and Comprehensive Plan Policy
j. 8 points parking program (reduce "sleeper" traffic)	yes	yes	See Public Parking Program
k. design future public parking to minimize traffic on residential streets	yes	yes	Comprehensive Plan Policy
l. consider closing Florence as part of future parking	yes	yes	Assessment District Policy
m. develop strategies to protect neighborhoods from downtown traffic	yes	yes	Staff Assignment
n. Allow no Alma (Palo Alto) to Sand Hill connection	yes	yes	Comprehensive Plan Policy
14. Land Use and Zoning Changes			
a. as per maps 3 and 8	yes	yes	Land Use Map Amendment and Rezonings of Properties

1. Annual Growth Limit

The City Council directed that the project control the rate of development by establishing an annual 0-50,000 square feet per year maximum growth allocation of commercial projects. If not used in a given year, the surplus would be carried forward and added to the next year's allocation. Residential projects would not be subject to the annual growth control.

This is the principal "project" strategy of the Downtown Study. At its maximum, a 50,000 square foot annual growth limit on commercial development in the Primary Study Area would amount to 350,000 square feet of floor area over the next seven years or approximately 10 percent above existing and 1984 development (including the "pipeline" projects already approved for construction).

**2. Additional Square Footage Allowed Through Exemptions
During the Period When the Growth Limitation is in Effect**

While the annual commercial allocation is to be limited to the 0 to 50,000 square foot range, there would be some additional development each year as a result of various exemptions.

a) Small Site Exemption

One strategy, approved by the City Council for EIR evaluation, would

permit 10 percent additional commercial development on sites 5,000 square feet or less in size by exempting such development from:

- (1) Annual growth limitations;
- (2) Maximum 2.0 to 1.0 FAR; and
- (3) Parking requirements.

This exemption, if fully used for all sites, could exempt up to 51,000 square feet from the annual growth limitation. For the purpose of this EIR, it is assumed that 20,000 square feet of exemptions space would be built during the seven year time period of the growth limitation.

b) Minor Expansions - All Sites

The City Council, in approving the Downtown Study project and alternative growth strategies for EIR evaluation, requested staff to develop a mechanism to allow a greater degree of "wriggle room" by exempting minor expansions. The intention of the Council directive on expansions was to allow all buildings modest expansions in order to encourage upgrading of existing buildings. Subsequently, staff and the Downtown Study Committee explored a number of possible mechanisms. The Study Committee recommended the following strategy as the most equitable provision.

"Exempt commercial building expansions of no more than 10 percent additional floor area, with a minimum expansion of 250 square feet of floor

III. Project Description

area regardless of existing building size and a maximum expansion of 500 square feet of floor area, from:

- (1) annual growth allocation and
- (2) parking requirements."

This "wriggle room" exemption would apply to all lots, and if fully utilized would allow 134,000 square feet of floor area. For the purpose of this EIR, it is assumed that 50,000 square feet would be built during the period when the annual growth limitation is in effect. Because the City Council expressed interest in both the small site exemption (assumed to yield 20,000 square feet of building) and the expanded "wriggle room" exemption (50,000 square feet), this EIR will address both. All impact areas which are sensitive to growth level (traffic, noise, air quality), will assume that there will be 20,000 square feet of exempt building and will also discuss the potential change in impact which would occur if the larger 50,000 square foot exemption were to be selected.

c) Small Site Expansion for the Handicapped

In addition to the exemptions just discussed, the proposed project also provides the following exemption.

"Exempt expansions to comply with Handicapped (Title 24) regulations for ~~existing~~ commercial buildings that are located on sites of 5,000 square feet or

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less, and where the existing FAR is 2.0 to 1.0 or less, from:

- (1) Annual growth allocations;
- (2) Maximum 2.0 to 1.0 FAR (but place a maximum FAR of 2.2 to 1.0);
and 
- (3) Parking requirements." (Council Growth Strategy No.7)

This strategy would not add net usable floor area and, therefore, such "handicapped" exemptions should not result in adverse environmental effects. It is the recommendation of the Downtown Study Committee that the exemption for handicapped improvements not be adopted if the larger "Wriggle Room" exemption is adopted.

3. Total Commercial Development In the Period of Growth Limitation

For the seven year period proposed for growth limitations, the Low Range of the project would allow a total of only 20,000 square feet of commercial growth, or 50,000 square feet if the larger "wriggle room" exemption is approved.

The High Range of the project would allow 370,000 square feet of commercial growth in the seven year period, including 20,000 square foot estimated to result from the small site exemption. If the larger "wriggle room" exemption is adopted, the seven year total would increase to 400,000 square feet.

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4. Maximum Project Size

The proposed project would establish new zoning standards to control the size of new projects:

- a) Establish commercial project size limits: 25,000 square feet gross or 15,000 square feet net gain over existing buildings, whichever is greater.
- b) Limit offices uses in the CS zone to 5,000 square feet per site.

5. Floor Area Ratio (FAR)

- a) CC zone: establish a maximum FAR of 2.0 to 1.0.
- b) CS zone: establish a maximum FAR of 1.0 to 1.0.
- c) CN zone: establish a maximum FAR of 0.5 to 1.0.

These floor area ratios would apply to properties in the Downtown study area only and would not apply to other areas zoned CC, CS, or CN. In order to implement this strategy new zoning districts will be developed, and the names of these new districts may not be "CC", "CS", or "CN." The use of the names "CC", "CS", and "CN" shall be used in this EIR to mean zoning districts with the general use characteristics of each of these existing zones, with the

understanding that the final zoning ordinances incorporating the project proposals may result in new zoning districts.

6. Rating Systems to Select Projects

Under the Low Range of the Project there will be no new commercial square footage (other than exempt projects) and there will be no need for a mechanism to select which projects are to be approved.

Under the High Range of the Project, 50,000 square feet of commercial development will be allowed each year, and a method will be required to determine which projects shall be built. In selecting the project for evaluation in this EIR, the City Council gave the following direction.

"Establish a rating system (including community benefit as one criteria) to determine project eligibility in annual growth allocations."

The Council further directed:

"Have project applications (with historic buildings) placed at the beginning of the line in the annual growth allocation."

7. Housing Incentives

The City Council's proposal states:

III. Project Description

"Consider housing incentives for Downtown CC, CS, and possible future CN areas, with a special emphasis for affordable units." No specific incentives were proposed.

8. Parking Requirements for Private Development Projects

The project would establish new zoning ordinance requirements for the provision of parking by development projects:

- a) "New development should provide 100 percent of its parking need except: (1) an exemption for the amount of floor area on a site currently assessed for parking; (2) a small exemption for vacant parcels; and (3) an exemption for minor expansions on small sites."
- b) "Establish a uniform parking requirement of one parking space per 250 square feet of floor area for all commercial uses."
- c) "Allow developers, unable to provide parking on-site, to have an opportunity to pay for spaces in a new public structure."
- d) Consider modification of off-site parking regulations to allow greater flexibility.
- e) Count at or above grade parking on or within a structures as floor area.

f) Provide a partial exemption from parking requirement for vacant sites.

9. Public Program

The Project includes programs to make better use of the existing Downtown parking supply and proposals to build new parking spaces. All of the Project proposals assume that the University Avenue Parking Assessment District will continue to finance existing public parking facilities. An assessment district may also be the mechanism by which proposed additions to public parking supply is implemented.

a) Existing Supply

An eight point program to make better use of the existing supply includes the following proposals:

- (1) Separate short and long term parking.
- (2) Reduce all day use of the short term public parking supply;
- (3) Provide validated cashier attended, variable fee parking at selected public parking facilities; and
- (4) Discourage displacement of parking into surrounding residential neighborhoods.
- (5) Promote high occupancy vehicular use of the parking space available.

III. Project Description

- (6) Convert existing supply of auto parking to bicycle/motorcycle parking spaces on a petition basis.
- (7) Involve employers in parking management.
- (8) Review existing parking lots to recommend redesign so that more parking stalls are provided for circulation is improved.

b) New Supply

The programs for new parking supply include:

- (1) Build at least one additional parking structure. Such a structure(s) should partially offset the existing deficit; provide some spaces for off-site parking to be funded by projects where on-site parking is not possible; and provide parking for minor additions.
- (2) Parking Lots S, L, and F are in key locations in the Downtown and should be used in ways that contribute to the overall needs of Downtown. These lots should not be considered for maximum development of parking, and should be considered for mixed use with parking and ground floor retail use, including a food market if practical.

10. Retail and Pedestrian Vitality

Major objectives of the Study involve the enhancement of retail and personal service uses within the Downtown and the fostering of an environment which is attractive to pedestrians. The following proposals address these objectives:

- a) "Establish a ground floor retail-only provision for the University Avenue corridor. Determine an appropriate vacancy rate which would allow properties to be leased to non-retail uses, for limited periods of time, if vacancy rate is exceeded."

The Downtown Committee recommends that this proposal be implemented through application of a new zoning requirement within the area designated on Map 3. Allowable ground floor uses would include retail, personal services, eating/drinking travel agencies, theaters and hotels. Existing office and other "non-retail" uses could remain in ground floor locations. The vacancy rate to activate this proposal would be 7.5 percent.

- b) "Prepare an ordinance regulating sidewalk encroachments which allows orderly and attractive private, temporary use of public sidewalks without obstructing pedestrian travel."
- c) "Develop design guidelines for driveways crossing sidewalks in commercial districts so that sufficient visibility is provided exiting vehicles to prevent their blocking sidewalks."

III. Project Description

These guidelines have not yet been drafted.

- d) "Add language to "P" District guidelines governing placement of entrances to parking which balance the following goals: (1) enhancement of the pedestrian environment along major streets; (2) promotion of traffic safety; and (3) protection of adjoining neighborhood side streets."

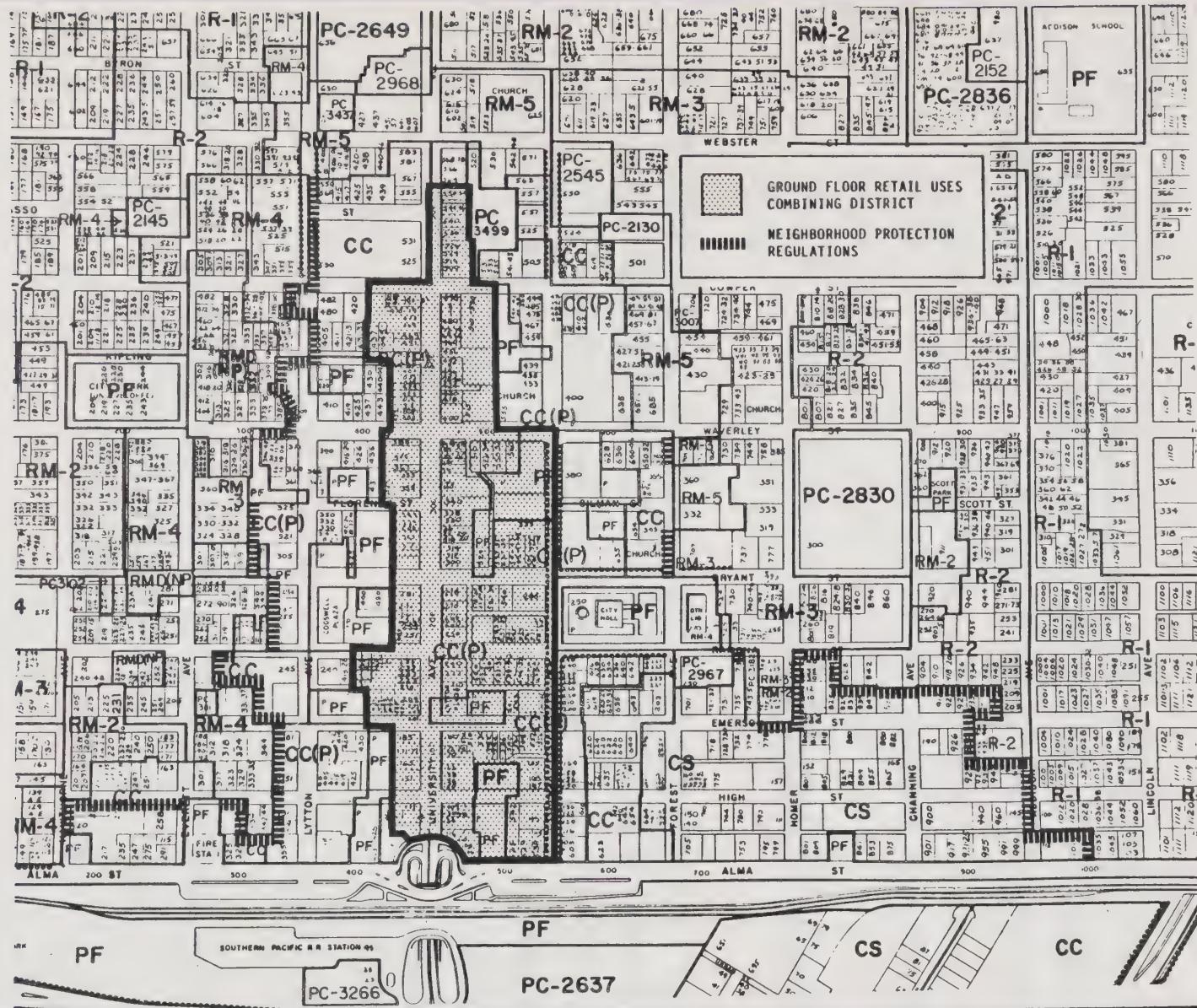
11. Neighborhood Protection Strategies

- a) The following strategies on zoning and design standards would apply to commercially zoned sites within 150 feet of abutting of residentially zoned (R-1 to RM-4) areas. (See Map 3) The intent of those strategies is to assure compatible transitions in terms of height, building materials, etc., between adjacent commercial and residential areas.

(1) "Reduce allowable height to two-stories, not to exceed 30 feet."

(2) "Require a street setback of commercial development equal to the adjacent residential setback where commercial and residential zones share a common block face."

(3) "Reduce the permitted bulk of commercial projects from the amount otherwise permitted in commercial districts near residential



DOWNTOWN STUDY EIR

MAP 3--PROPOSED PROJECT

NEIGHBORHOOD PROTECTION AND GROUND FLOOR USE REGULATIONS

III. Project Description

areas. This strategy could be accomplished by some or all of the following approaches:

- Reduce the maximum FAR;
- Count above-grade parking as FAR;
- Control parcel merger; and
- Set limits on the size of commercial projects."

b) The following general strategies for neighborhood protection are essentially cross-references to several parking and traffic strategies which are described in those respective sections.

(1) "Do not allow the parking deficit to grow, in order to avoid further parking intrusion in the neighborhoods." This strategy refers to the study goal on parking and to specific public and private parking strategies identified earlier.

(2) "Develop strategies to protect neighborhoods from Downtown traffic."

12. Historic Preservation

The project proposes to develop the following mechanisms, consistent with other recommended growth strategies, to preserve buildings of historic and architectural interest:

III. Project Description

- a) Direct the Historic Resources Board to establish a Downtown overlay zone for buildings for significant structural interest that contribute to the character of Downtown Palo Alto;
- b) Apply the following proposals to all building sites included with the "significant structure" overlay zone:
 - (1) Adopt an ordinance prohibiting demolition of such structures;
 - (2) Adopt an ordinance requiring adequate maintenance of such structures;
 - (3) Establish a density transfer program; and
 - (4) Determine feasibility of a revenue bond program for structural rehabilitation and maintenance at below market rate financing.
- c) Permit density transfer receiver sites to:
 - (1) Be located anywhere within Downtown commercially-zoned districts, except in: (a) sites in the significant structure overlay zone; and (b) sites within a 150-foot band of adjacent residentially-zoned properties;

III. Project Description

- (2) Develop an additional 1.0 to 1.0 FAR above the maximum otherwise permitted under the proposed growth strategies (i.e., in CC 2.0 to 1.0 and in CS 1.0 to 1.0); and
- (3) Have project applications placed at the beginning of the line in the annual growth allocation.

13. Traffic Strategies

a) Limit Traffic Generation:

- (1) "Reduce development potential." This strategy is a cross reference to the annual growth limitation strategies.
- (2) "Development an incentive program to reduce drive-alone vehicle trips, including placing more emphasis on the need for express bus service to serve Downtown."
- (3) "Maximize incentives for low traffic generating uses." This strategy is a cross reference to the housing incentive growth strategy.

III. Project Description

b) Improve Downtown Circulation:

- (1) "Set signal timing to facilitate pedestrian crossing of University, and vehicular progression on Hamilton and Lytton."
- (2) "Place signs directing traffic trying to reach Highway 101 via Hamilton eastbound as far as Middlefield and directing traffic trying to reach Stanford via Lytton westbound from Middlefield to High."
- (3) "Conduct a license plate cordon survey of the study area to gather more data on through traffic versus local traffic."
- (4) "On Middlefield or Alma, do not install any new traffic signals north of Lytton or south of Channing to Churchill."
- (5) "In the future, consider Emerson for one-way operation as a couplet with High Street."
- (6) "Discourage regional through traffic." This strategy will require a future special study.
- (7) "Develop strategies to protect neighborhoods from Downtown traffic."

1.1.2.2.2

1.1.2.2.2

III. Project Description

(8) Allow no direct vehicular crossing between the proposed connection of Sand Hill (Willow Road) at El Camino Real with Palo Alto Avenue/Alma Street.

c) Traffic Consequences of Parking Strategies:

(1) "Adopt entire 8-point package of parking recommendations to reduce traffic caused by sleepers." This statement refers to a previously identified parking strategy on improving the efficiency of the existing supply. "Sleepers" are defined as all-day parkers using short term parking spaces, moving their cars around during the day to avoid being ticketed.

(2) "Design access to future public and private parking to minimize traffic on adjoining residential streets."

(3) "Consider closure of Florence Street in conjunction with Parking Lots S, L, or F."

14. Land Use and Zoning Map Amendments

The proposed project will require amendments to the Comprehensive Plan Land Use Map and to the zoning map (as well as zoning ordinance amendments to create new regulations). The changes to land use designations and zoning district boundaries are shown on the following maps, and described below.

III. Project Description

a) CC zone, generally from Lytton to Hamilton (see Maps 3 and 7).

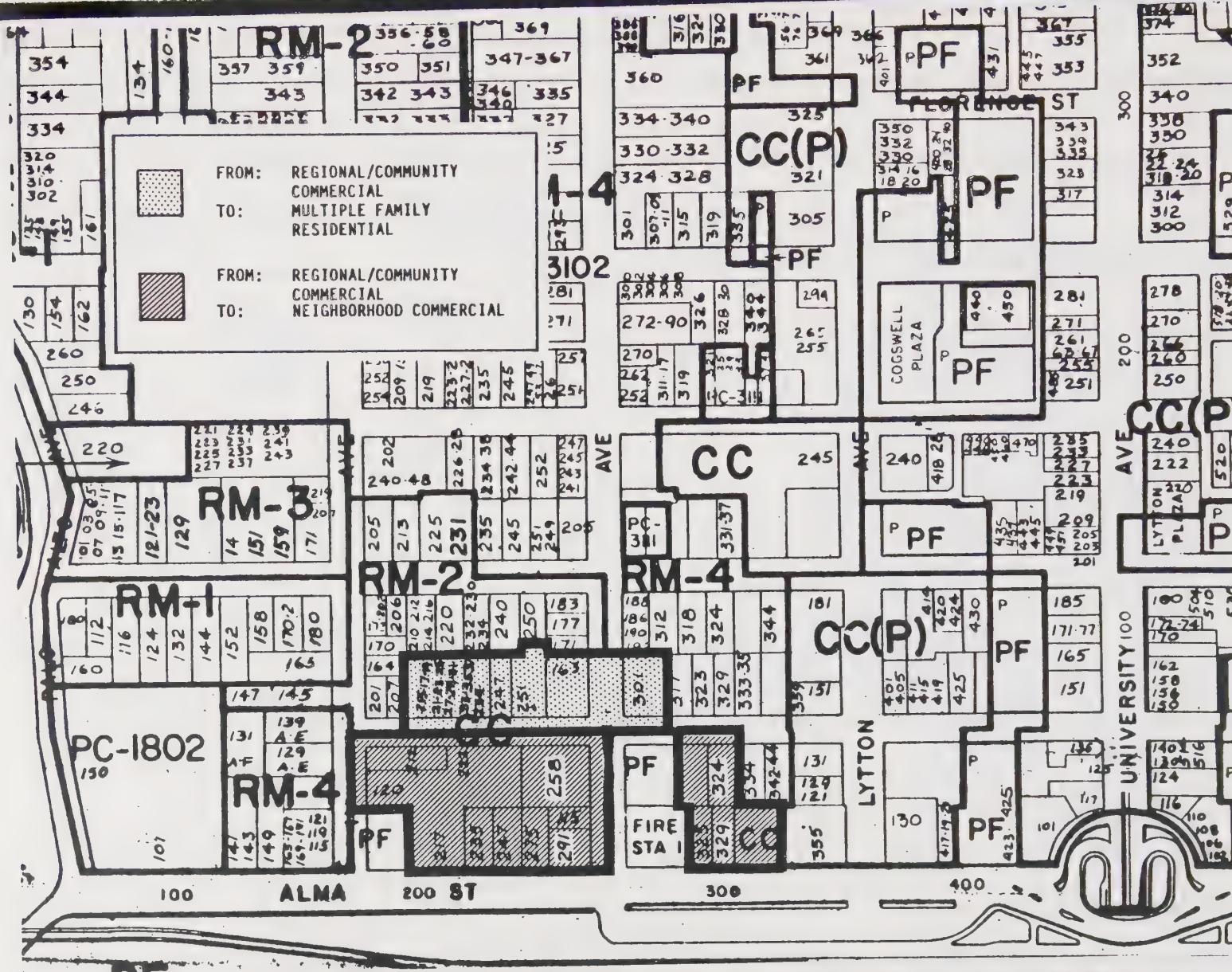
This area will remain in community commercial land use with a reduced floor area ratio of 2.0 to 1.0. Within the CC district, a new ground floor retail area will be designated and neighborhood protection regulations will be applied where the commercial zone abuts a residential zone other than RM-5.

b) Primary Study Area North of Lytton (See Maps 4 and 6)

- (1) "Rezone the area on east side of High between Lytton and Hawthorne from Community Commercial (CC) to housing, with a grandfather clause for existing neighborhood serving non-residential use."
- (2) "Rezone blocks bounded by Lytton, Alma, Hawthorne, and High, except for parcels fronting Lytton, from CC to Neighborhood Commercial (CN), with a 1.0 to 1.0 FAR and with an incentive for housing. Scale of development for housing should be lower for sites facing High, and higher for sites facing Alma."

c) CS Zoned Section of Primary Study Area (See Maps 5 and 8)

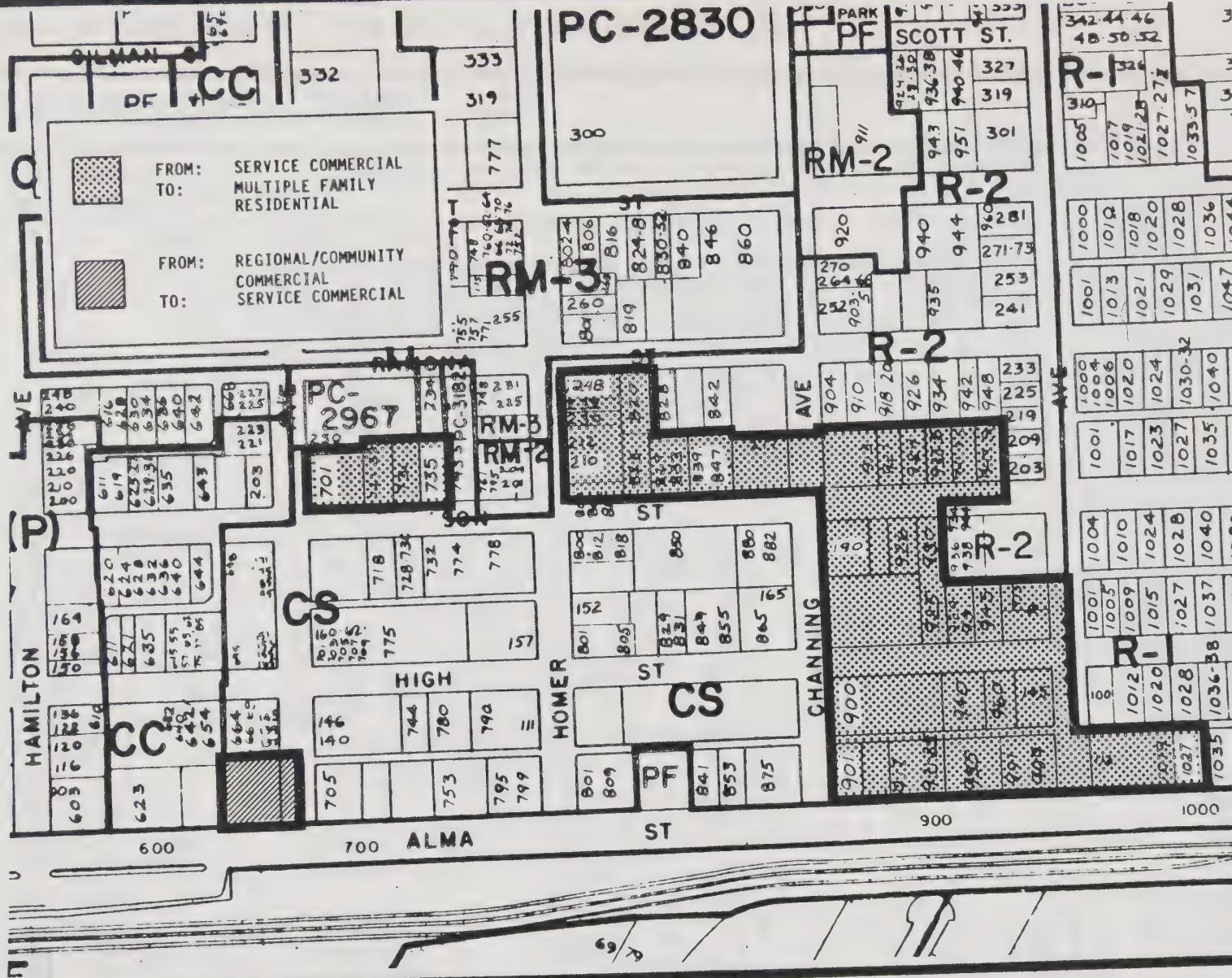
- (1) "Rezone northeast corner of Alma and Forest, from CC Community Commercial to Service Commercial (CS), with a 1.0 to 1.0 FAR."

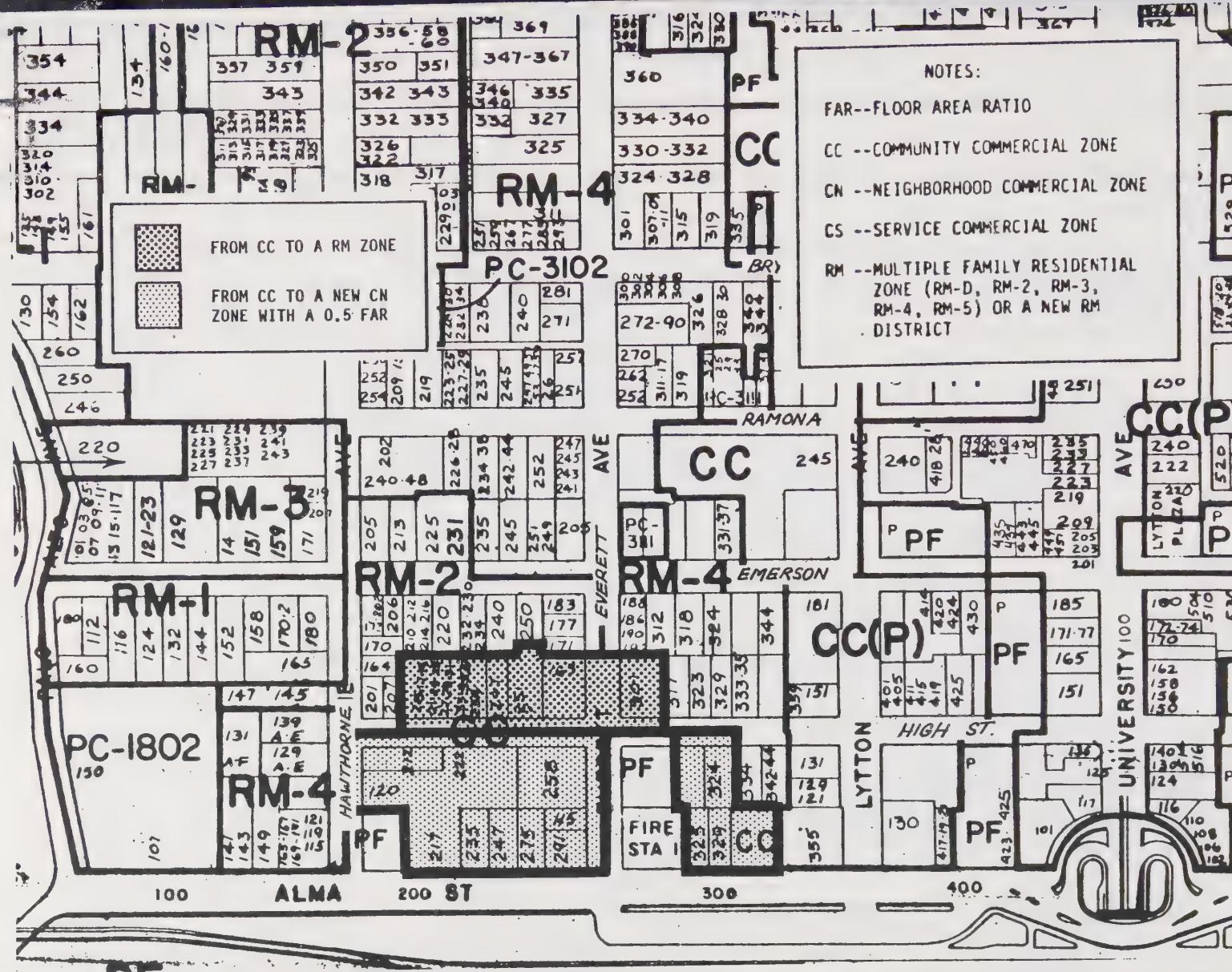


DOWNTOWN STUDY EIR

MAP 4--PROPOSED PROJECT LAND USE MAP CHANGES, NORTHERN AREA



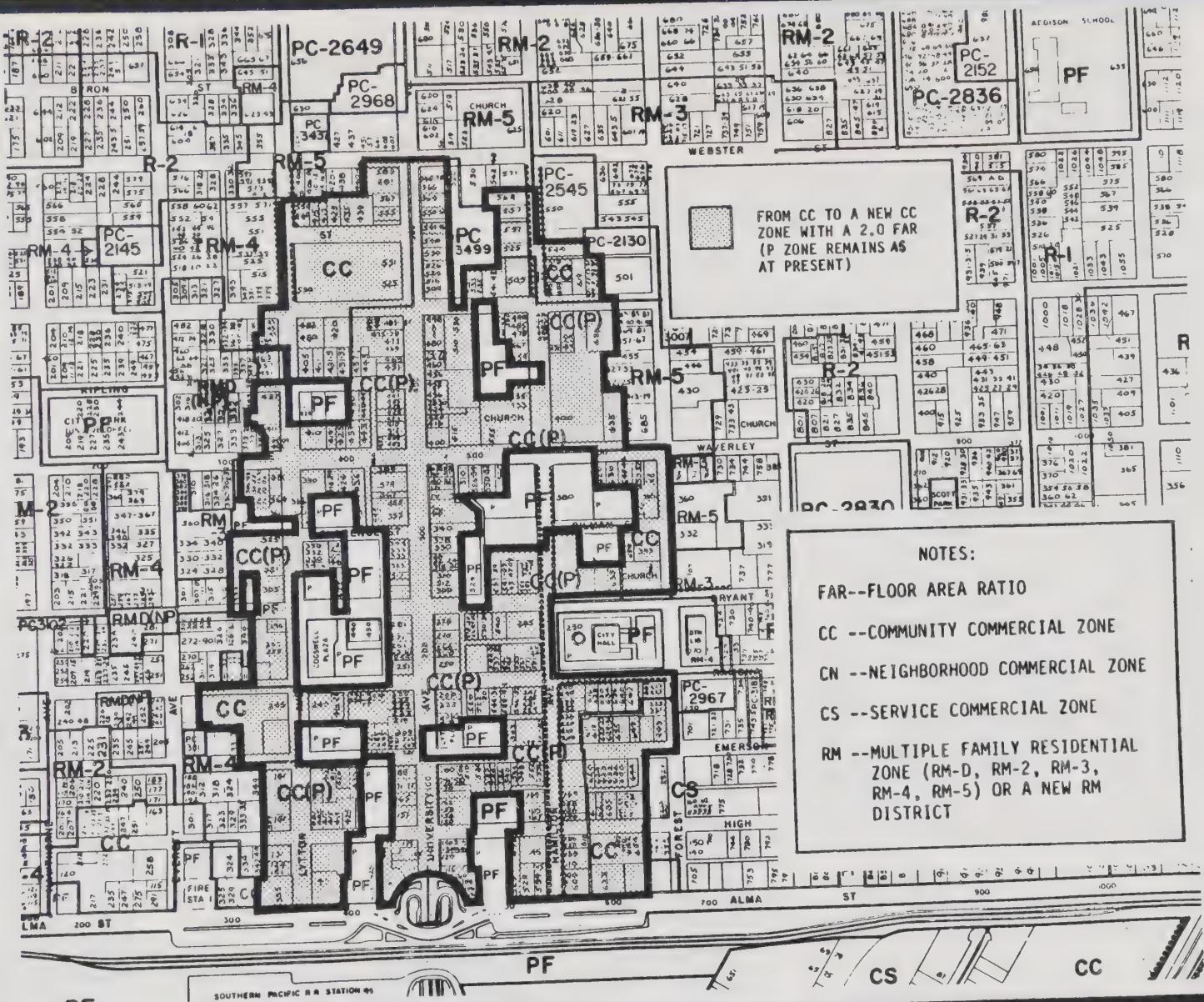




DOWNTOWN STUDY EIR

MAP 6--PROPOSED PROJECT ZONING MAP CHANGES, NORTHERN AREA





DOWNTOWN STUDY EIR

MAP 17--PROPOSED PROJECT

ZONING MAP CHANGES, CENTRAL AREA





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PARK IT

NOTES:

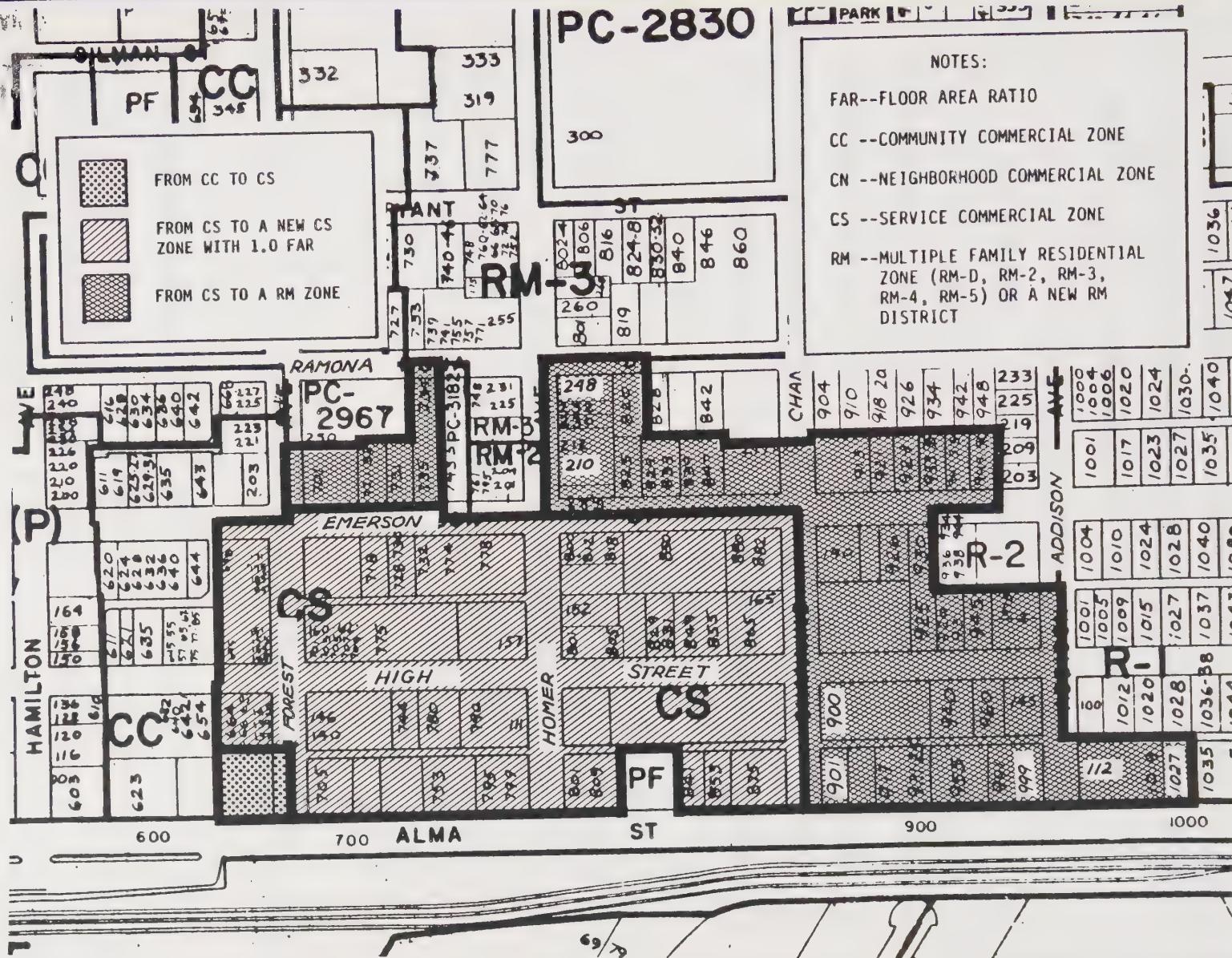
FAR--FLOOR AREA RATIO

CC --COMMUNITY COMMERCIAL ZONE

CN - NEIGHBORHOOD COMMERCIAL ZONE

CS --SERVICE COMMERCIAL ZONE

RM -- MULTIPLE FAMILY RESIDENTIAL
ZONE (RM-D, RM-2, RM-3,
RM-4, RM-5) OR A NEW RM
DISTRICT



DOWNTOWN STUDY EIR



MAP 8--PROPOSED PROJECT ZONING MAP CHANGES, SOUTHERN AREA

III. Project Description

- (2) "Retain CS zoning for blocks bounded by Alma, Forest, Emerson, and Channing. Also, retain current 5,000 square foot limit on office uses. Reduce the FAR to 1.0 to 1.0, but provide an incentive for housing."
- (3) "Consider appropriate sites for rezoning from CS to housing for area east of Emerson and south of Channing based on proximity to existing residential areas and suitability of parcel for housing. Densities should increase away from existing adjacent single-family residential neighborhoods. Consider which properties should remain CS."

Because specific sites were not proposed for rezoning to a residential zone, Maps 5 and 8 show the entire area within which the proposal might apply. It is understood that the actual area which might be rezoned or given a housing land use designation might be smaller.

D. INTENDED USES OF THE ENVIRONMENTAL IMPACT REPORT

This EIR is intended for use by Palo Alto's Planning Commission and City Council in evaluating the Project's impacts on the environment and in consideration of project alternatives and mitigation measures prior to taking action on the Project. Initially this EIR will be used to evaluate:

b7c

b7d/8c5

III.34 ab

III. Project Description

- 1) proposed Comprehensive Plan Land Use Map changes;
- 2) proposed Comprehensive Plan Policy changes;
- 3) proposed zone map changes;
- 4) proposed Zoning Ordinance amendments;
- 5) proposed annual growth limitation process;
- 6) proposed programs to deal with traffic;
- 7) proposed programs to deal with parking;
- 8) revisions and additions to (P) District, sidewalk encroachment and other design guidelines;
- 9) proposed ordinances and policies on historic preservation.

This EIR is also intended for use by Palo Alto's Architectural Review Board, Planning Commission, City Council and City staff in evaluating environmental impacts of future development projects in the study area and in preparing further environmental assessments for these projects which may be found necessary. Such projects would include:

- 1) Architectural Review Applications;
- 2) Site and Design Applications;
- 3) Subdivision Applications;
- 4) Conditional Use Permits; and
- 5) Planned Community Zone Applications

Pursuant to the provisions of CEQA Guidelines Section 15168 and Public Resources Code Section 21094, (Program EIR), if the impacts of future development projects are considered to be sufficiently covered by the analysis

III. Project Description

in this EIR, no further environmental analysis will be done. If some areas are not adequately addressed, further environmental analysis will be done but will be limited to those areas not covered in this EIR.

This EIR is also intended for use by the California State Transportation Department (Caltrans), Santa Clara and San Mateo Counties and by adjacent communities and interested agencies as a reference document.

E. AGENCIES WITH JURISDICTION BY LAW

The project may affect resources of two other governmental agencies. Growth in the Downtown will influence traffic at the Middlefield/Willow intersection which is within Menlo Park, and will also have some effect on El Camino Real in Menlo Park. El Camino Real is also a State highway under the jurisdiction of Caltrans.

Since agencies exercising authority over resources which may be affected by the Project are considered to have "jurisdiction by law" (CEQA Guidelines Section 15366), Palo Alto has requested comments on the draft EIR from them and will be consulting with them (Guidelines Section 15086).

F. RELATIONS TO FUTURE STUDIES AND ORDINANCES

A number of the details of the proposed project will require future studies prior to implementation. These future studies which will be subject to further environmental assessment include:

III. Project Description

1. Parking Programs which lead to new public parking lots and/or structures, (see Section VI.J, Transportation, Circulation and Parking).
2. The eight point program to use existing parking resources more efficiently, (see Section VI.J., Transportation, Circulation and Parking).
3. Historic Preservation program of density transfer, (see Section VI.M, Visual and Historic).

In addition, the City has initiated a Citywide land use and transportation study which will identify traffic and air quality implications of future commercial and industrial growth throughout the City. The Downtown study zoning and policies will be used as a basis for the work of this new study. When the results of the Citywide study are known, there may be a need to further refine the Downtown Study proposals to reflect City problems outside of the scope of the present Downtown Study. The Citywide study will lead to comprehensive revisions of the City's Comprehensive Plan land use map and transportation element.

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radio
station
summers

SECTION IV ALTERNATIVES

Four major alternatives to the Project have been developed for the study area. Each of these major alternatives produces a different level of development or arrives at the level of development through a different approach to land use control. Within the alternatives there are numerous variations on the characteristics of the project. The alternatives have been developed to expose a wide variety of ideas, and are not mutually exclusive.

Among the alternatives, there are several proposals (particularly with regard to land use and housing incentives) developed by the Downtown Study Committee subsequent to City Council action on the original package of strategies and alternatives. Although treated as alternatives rather than as part of the proposed project in this EIR, it should be understood that the Study Committee developed many of these proposals in order to carry forward and more precisely define several strategies that had been approved in general concept by the City Council when it reviewed the Downtown Study strategies.

It is likely that the policy makers may wish to pick and choose from the details of the project and the various alternatives when the final regulations and programs are adopted. In this way, the project and alternatives are like a menu with many possible combinations. The alternatives are, therefore, key material in this EIR and will be discussed along with the project in each chapter.

The characteristics of each alternative as it relates to the project are summarized in the following table.

Table 4

COMPARISON OF THE PROJECT WITH ITS ALTERNATIVES

CHARACTERISTIC	THE PROPOSED PROJECT		ALTERNATIVES			
	1A	1B	2	3	4	5
	LOW RANGE	HIGH RANGE	17,500 FT/YR	70,000 FT/YR	REDUCED FAR	NO PROJECT
1. Annual Growth Limit						
a. square feet per year	0	50,000	17,500	70,000	na	na
b. period under study (yrs)	7	7	10	7	10	10
c. square feet in period of limitation	0	350,000	175,000	490,000	na	na
d. unused yearly allocation added to next year's limit	na					
e. monitor growth annually	yes					
2. Additional sq. ft. Allowed Through Exemptions During Period Under Study	20,000 to 50,000	20,000 to 50,000	20,000 to 50,000	20,000 to 50,000	na	na
a. 10% expansion on sites up to 5,000 sq. ft., or "wriggle room" of from 250 sq. ft. for all sites	yes	yes	yes	yes	na	na
b. handicapped improvements	yes	yes			na	na
3. Total Commercial Development In Period Studied Including Exemptions When Applicable	20,000 to 50,000	370,000 to 400,000	195,000 to 225,000	510,000 to 540,000	About 370,000	1,100,000
4. Maximum Project Size						
a. vacant sites (sq. ft.)	25,000	25,000	25,000	25,000	na	na
b. redeveloped sites, (sq. ft. net gain on site)	15,000	15,000	15,000	15,000	na	na
c. offices in CS zone limited to 5,000 sq. ft./site	yes	yes	yes	yes		
d. bonus for child care in *CS zone						
5. Commercial Floor Area Ratio						
a. CC Zone	2 to 1	2 to 1	2 to 1	1.75 to 1	0.75 aver	3 to 1
b. CS Zone	1 to 1	1 to 1	0.5 to 1	0.5 to 1	0.4 aver	2 to 1
6. Rating System To Select Projects Based Upon:						
a. community benefit	na	yes			na	na

Table 4

COMPARISON OF THE PROJECT WITH ITS ALTERNATIVES

Page 2

CHARACTERISTIC	THE PROPOSED PROJECT		ALTERNATIVES			
	1A LOW RANGE	1B HIGH RANGE	2 17,500 FT/YR	3 70,000 FT/YR	4 REDUCED FAR	5 NO PROJECT
	b. first come served c. lottery		yes	yes		
7. Housing Incentives						
a. general concept only	yes	yes				
b. CC zone			yes	yes		
1. developable floor area concept sets density						
2. BMR bonus						
3. Same as current zone						
c. CS zone						
1. added 0.5 to 1.0 FAR and developable floor area density concept			yes	yes		
2. BMR bonus						
3. same as current zone						
8. Parking Requirements	yes	yes	yes	yes	yes	yes
a. same as project	yes	yes				
b. no parking requirement						
c. exemption for vacant lots						
9. Parking Program	yes	yes	yes	yes	yes	yes
a. same program as project						
b. purchase vacant lots for added public parking						
c. do not implement new parking program						
d. 2nd parking structure limited to parking only (no mixed use)			yes	yes		
e. structure on lots S,L,F for park- ing only (no mixed use)			yes	yes		
10. Retail/Pedestrian Vitality	yes	yes	yes	yes	yes	yes
implement project proposals						

Table 4

COMPARISON OF THE PROJECT WITH ITS ALTERNATIVES

Page 3

CHARACTERISTIC	THE PROPOSED PROJECT		ALTERNATIVES			
	1A	1B	2	3	4	5
	LOW RANGE	HIGH RANGE	17,500 FT/YR	70,000 FT/YR	REDUCED FAR	NO PROJECT
11. Neighborhood Protection implement project proposals	yes	yes	yes	yes	yes	
12. Historic Preservation implement project proposals	yes	yes	yes	yes	yes	
13. Traffic Strategies implement project proposals	yes	yes	yes	yes	yes	
14. Land Use Changes a. as per maps 4 and 5 b. as per maps 9 and 10 c. no changes	yes	yes	yes	yes		yes
15. Zoning Changes a. as per maps 3, 6, 7 and 8 b. as per maps 11 and 12 c. as per maps 13 and 14 d. set by design criteria e. no changes	yes	yes	yes	yes	yes	yes
16. Protect Apartments from Conversion			yes	yes		yes

IV. Alternatives

A. ALTERNATIVE 2: 17,500 SQUARE FEET/YEAR

The major difference between the project and Alternative 2 is the annual growth level. Alternative 2 would allow 17,500 square feet per year for ten years.

Other differences are:

- 1) Commercial growth at the end of ten years equals 195,000 square feet.
- 2) CS zoned property will have a 0.5 FAR.
- 3) There would be no rating system based on community benefit to choose which projects would be approved on a first come, first serve basis.
- 4) Housing densities would be computed at one unit for each 1,000 feet of "developable floor area."
- 5) There would be no special exemption from parking requirements for development on vacant lots.
- 6) Land use and zoning would differ from the project as shown on Maps 9, 10, 11 and 12. The major change in zoning would be that the CS area would have a 0.5 FAR (project FAR is 1.0) and would have additional FAR for housing in a pattern that builds in density with distance from single-family residential zones.

IV. Alternatives

- 7) An additional commercial FAR of 0.25 to 1 would be permitted on CN and CS sites south of Hamilton where on-site child care facilities are provided and where the proposed housing FAR is 1.0 to 1 or less.
- 8) There would be an ordinance regulating the conversion of apartment units to hotels.

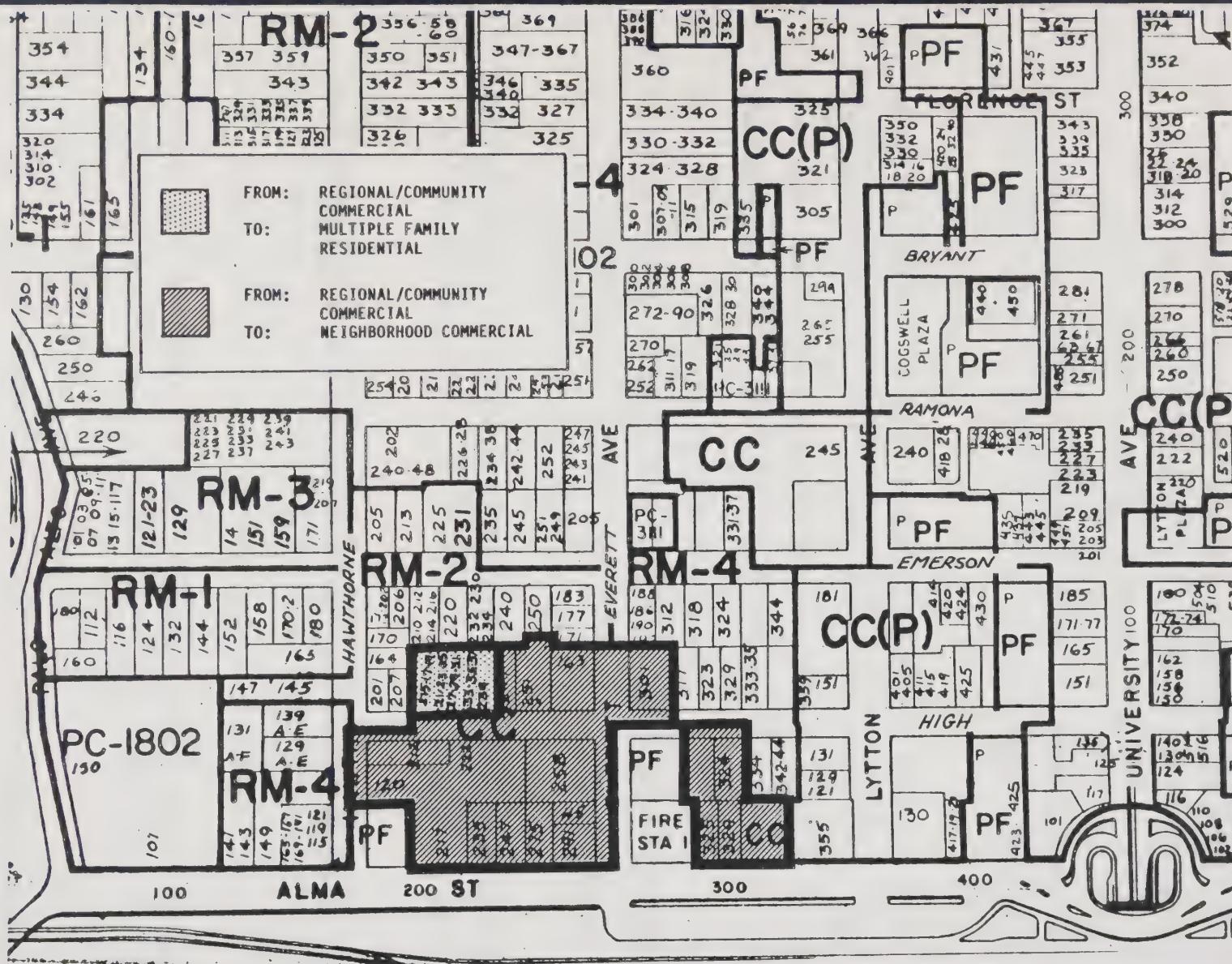
B. ALTERNATIVE 3: 70,000 SQUARE FEET/YEAR

Alternative 3 differs from the project in the following respects:

- 1) The annual growth allocation would be 70,000 square feet per year for seven years, or a seven year total of 510,000 square feet including 20,000 square feet of exempt space.
- 2) Floor area ratio in the CC zones is 1.75.
- 3) Commercial floor area ratio in the CS zone is one half of the housing FAR and ranges from 0.25 to 1 in areas closest to existing residential zones to 0.75 to 1 in the area closest to existing CC zone.
- 4) A child care incentive would be offered that is identical to the one in Alternative 2.

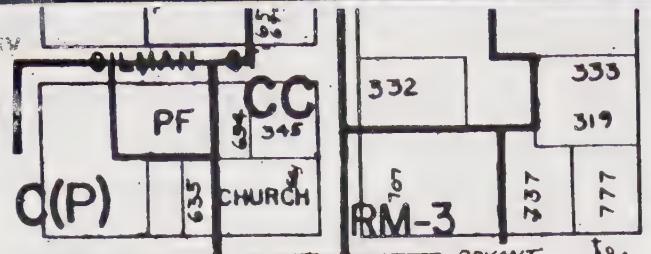
IV. Alternatives

- 5) The method for selecting which projects are allowed to build would be a lottery.
- 6) Housing density would be based on one unit for each 1,000 square feet of developable floor area.
- 7) Land use map and zoning, map changes from the project are shown on Maps 9, 10, 13 and 14. The present CC area north of Lytton would be mostly rezoned to a CS zone (in this area with a floor area ratio (FAR) of 1.0 to 1.0). The zoning south of Hamilton would resemble that in Alternative 3 except that the density would be distributed differently, with the commercial density equal to one half the residential density.
- 8) The City would initiate a program for purchase of private lots now used for surface parking.
- 9) There would be a ordinance regulating the conversion of apartments to hotels.
- 10) A second public parking structure would be considered for parking use only.
- 11) For areas rezoned to CN, a grandfather clause would be established allowing continuance of existing neighborhood-serving uses not provided for in the CZ zone.

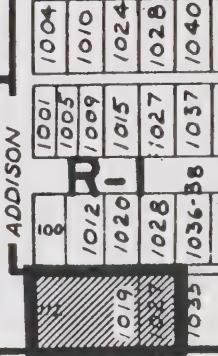
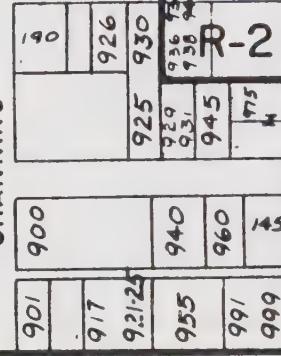
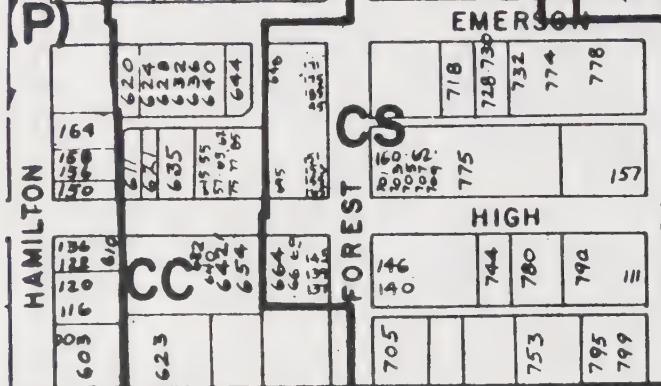
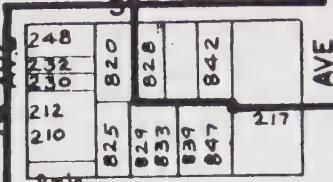
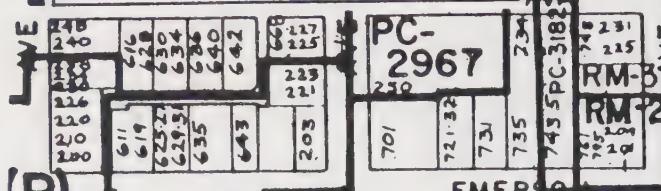
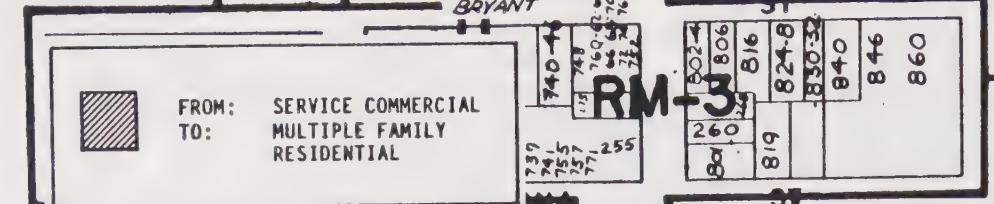
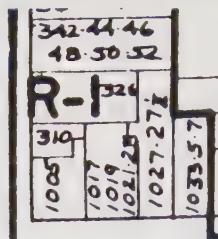
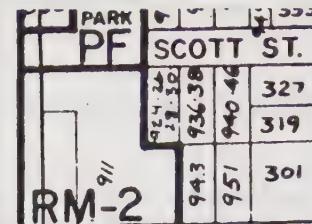


DOWNTOWN STUDY EIR

MAP 9--ALTERNATIVES 2 AND 3 LAND USE MAP CHANGES, NORTHERN AREA

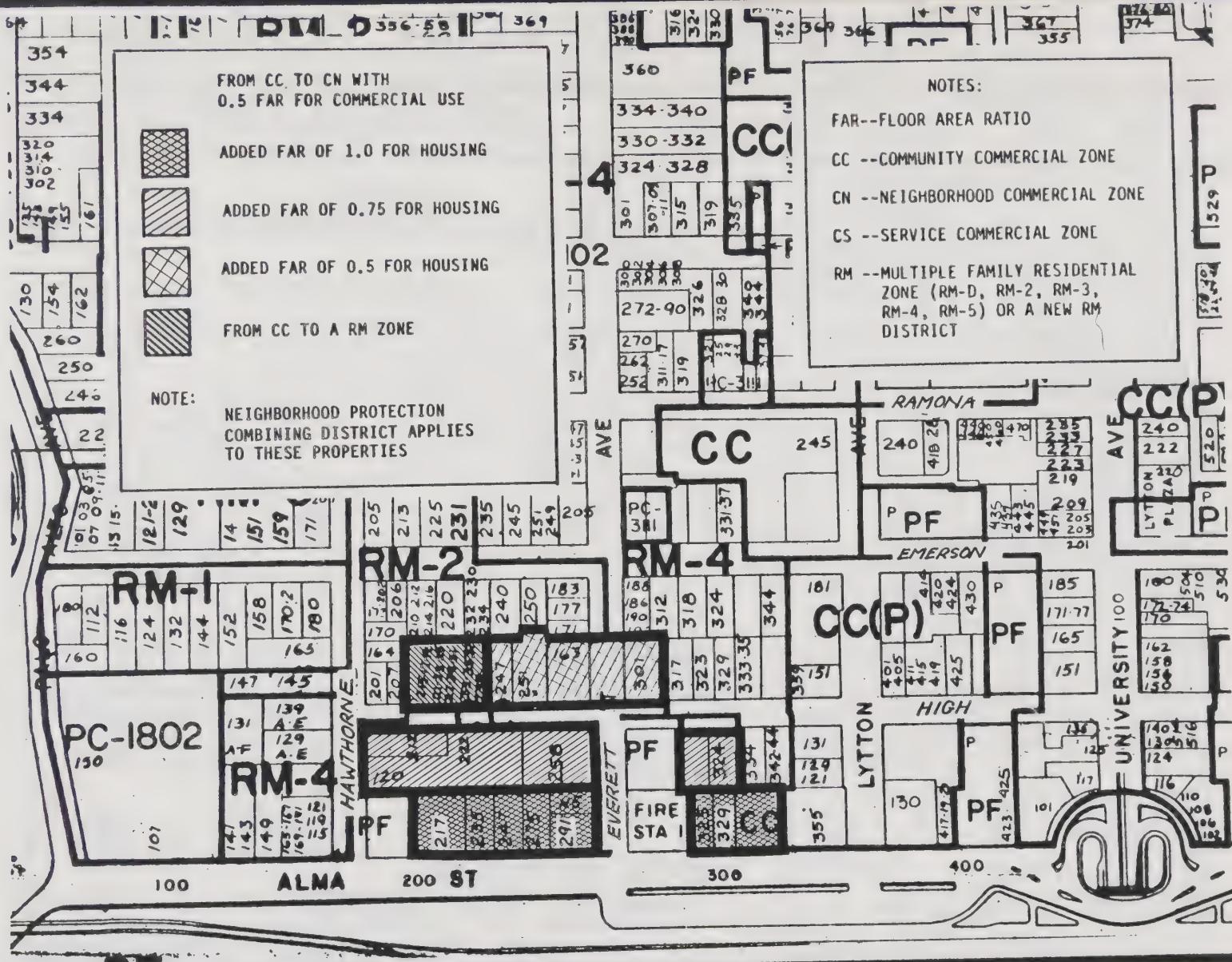


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DOWNTOWN STUDY EIR

MAP 10--ALTERNATIVES 2 AND 3 LAND USE MAP CHANGES, SOUTHERN AREA



DOWNTOWN STUDY EIR

MAP 11--ALTERNATIVE 2 ZONING MAP CHANGES, NORTHERN AREA

PC-2830

OLMAN
CC

332

333

FROM CS TO A NEW CS WITH
THE FOLLOWING FAR'S:

COMMERCIAL	0.5
HOUSING	1.5
COMMERCIAL	0.5
HOUSING	1.0
COMMERCIAL	0.5
HOUSING	0.75
COMMERCIAL	0.5
HOUSING	0.5

FROM CS TO A NEW CN
ZONE:

COMMERCIAL FAR	0.5
HOUSING FAR	0.5
FROM CS TO RM-2	
REMAINS CC, FAR 2.0	

NOTE: NEIGHBORHOOD COMBINING
DISTRICT APPLIES

100

3	806	816	97
10	819	824-8	
20	830-32		
30	840		
40	846		
50	860		

NOTES:

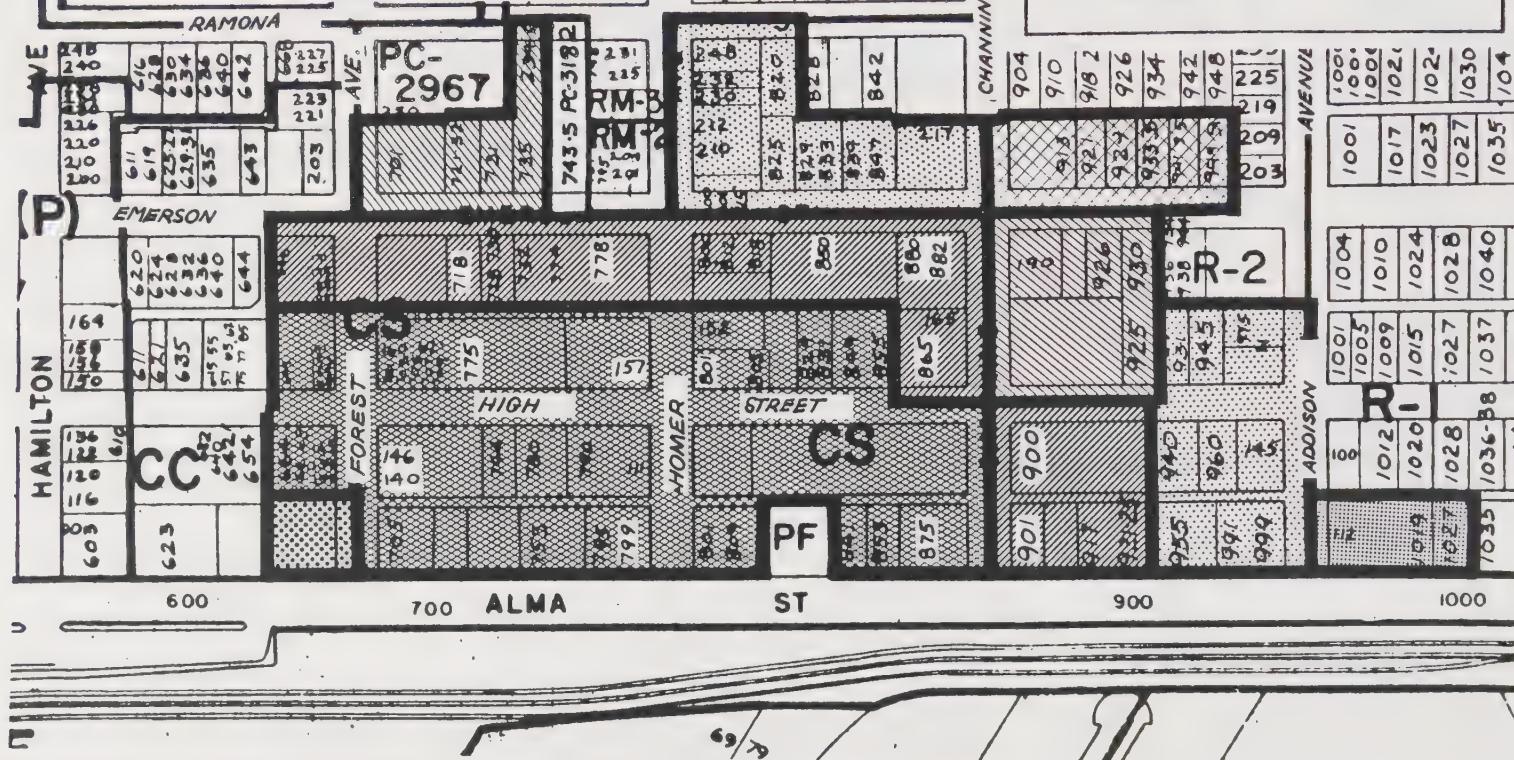
FAR--FLOOR AREA RATIO

CC --COMMUNITY COMMERCIAL ZONE

CN --NEIGHBORHOOD COMMERCIAL ZONE

CS --SERVICE COMMERCIAL ZONE

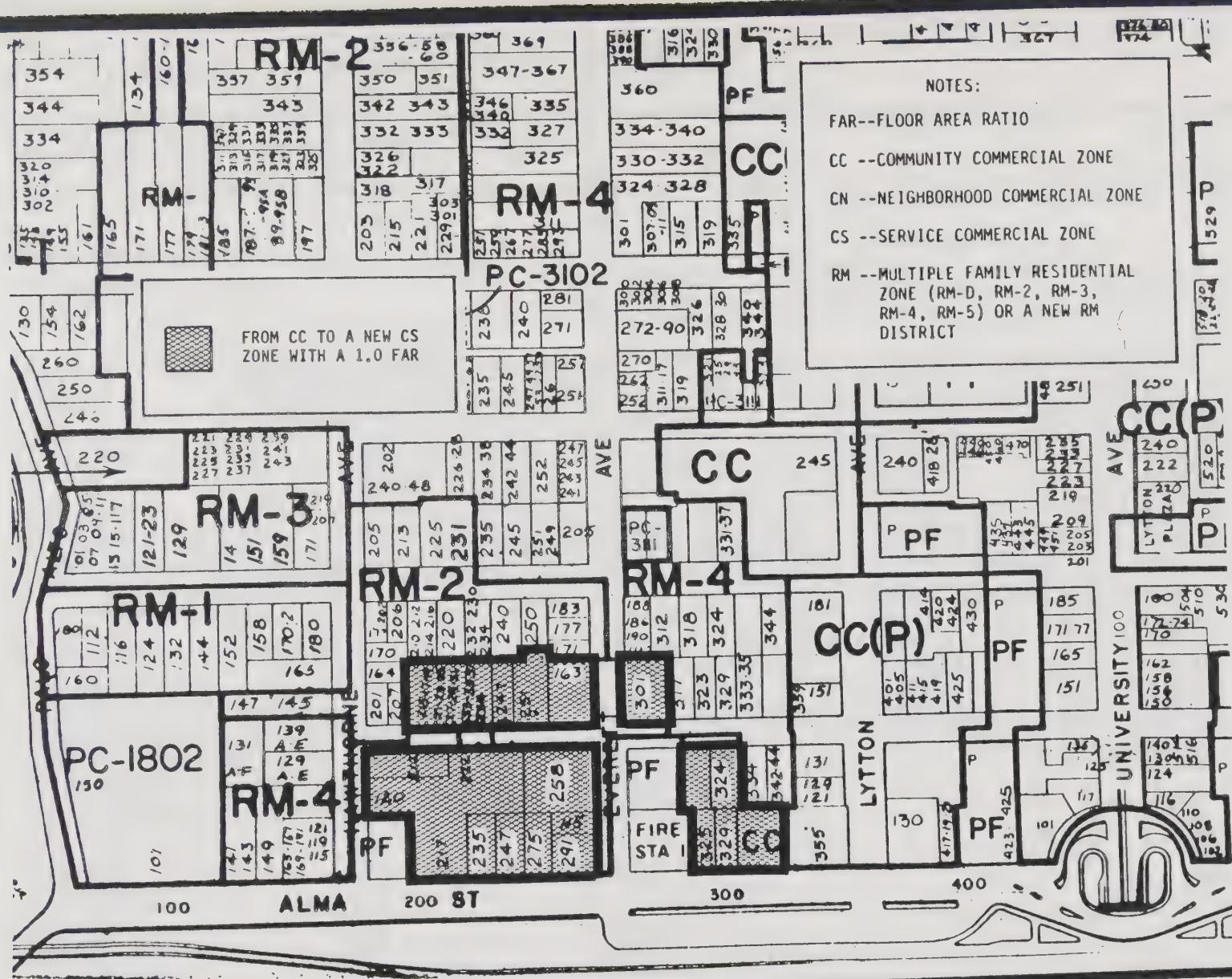
RM --MULTIPLE FAMILY RESIDENTIAL
ZONE (RM-D, RM-2, RM-3,
RM-4, RM-5) OR A NEW RM
DISTRICT



DOWNTOWN STUDY EIR

MAP 12--ALTERNATIVE 2 ZONING MAP CHANGES, SOUTHERN AREA

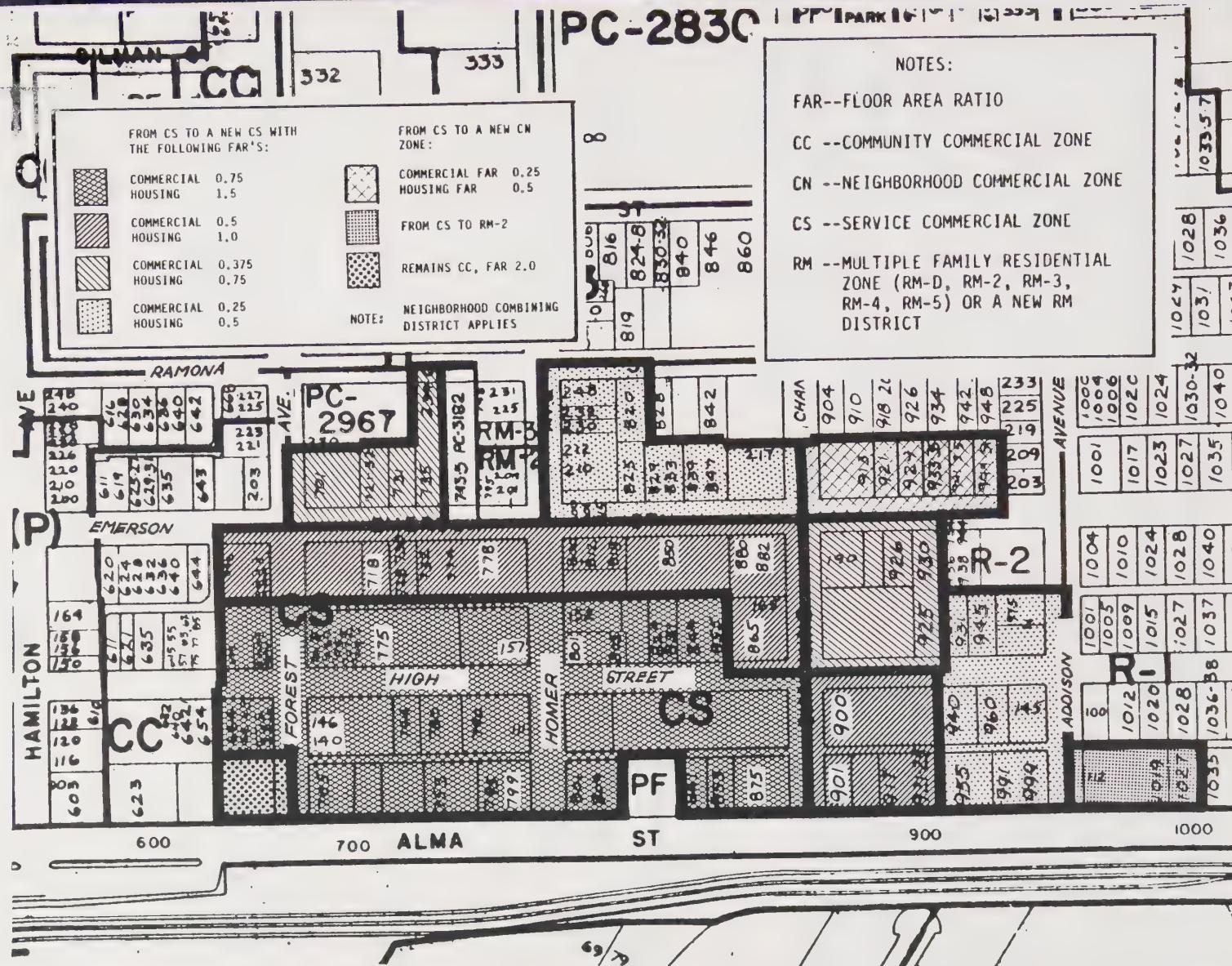




DOWNTOWN STUDY EIR

MAP 13--ALTERNATIVE 3 ZONING MAP CHANGES, NORTHERN AREA

PC-283C



DOWNTOWN STUDY EIR

MAP 14--ALTERNATIVE 3 ZONING MAP CHANGES, SOUTHERN AREA



C. ALTERNATIVE 4: REDUCED FAR

This alternative would not include an annual growth allocation, but would reduced commercial densities to accomplish a level of growth similar to the project growth level. Using the high range of the project as basis for comparison, this alternative was designed to allow a build out level near 370,000 additional square feet of commercial use in the Downtown. This could be accomplished by rezoning CC parcels to a FAR of 0.75 to 1 and rezoning CS parcels to a 0.4 to 1 FAR. It is unlikely that build-out would occur by 1995, but a 1995 build-out is non the less assumed for the purpose of this alternative.

The same concept could be used to allow higher levels of growth. For example a 0.9 to 1 FAR in CC zones plus a 0.6 to 1 FAR in CS zones would have a build-out of about 511,000 square feet of commercial use, and would be similar to Alternative 3 in its impacts.

Other characteristics of this alternative are:

- 1) While average FAR's would be as stated above, there would be a study to determine precise densities and zoning for each parcel based on design characteristics, location, and parcel configuration.
- 2) Limitations would be established on the number of construction project sidewalk street encroachments for major areas within the Downtown.

IV. Alternatives

This would assure that no street or area would be unduly disrupted by multiple construction projects at one time, and would tend to even out the pace of development within the Downtown.

D. ALTERNATIVE 5: NO PROJECT

This is the no project alternative and would be a continuation of present zoning with parking requirements reverting to the pre-December 1983 policy of no required parking within the parking assessment district. No new parking project or traffic programs would be undertaken.

SECTION V

GENERAL SETTING AND PLANNING CONSIDERATIONS

A. CURRENT CONDITIONS

The location of the Downtown Palo Alto Study Area was described in Section III, Project Description. The study area is an urbanized, commercial business district with secondary residential and public facility uses. With the exception of public open spaces (Cogswell Plaza, Lytton Plaza, and Civic Center Plaza) the only open sites consist of parking lots and a few privately owned vacant parcels.

1. Land Use and Level of Development

There were approximately 2.9 million square feet of developed floor area within the Downtown Primary Study Area in late Spring of 1984. Approximately 5 percent of this floor area was vacant. Office and financial service uses accounted for approximately 35 percent of this floor area while retail service businesses occupied approximately 15 percent. Other uses occupying substantially smaller proportions of the total floor area included general business services, residential, auto service, and eating and drinking uses.

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In addition to this 2.9 million square feet, about 20 projects consisting of new buildings or expansions were approved in the Primary Study Area prior to the imposition of a moratorium on new construction in September, 1984. These approved projects, henceforth, referred to as "pipeline" projects, will add approximately 523,000 square feet of floor area to the Downtown area or about 17 percent above the total that was considered developed in the Spring of 1984. Most of this additional floor area will be absorbed by office and financial service uses. Approximately 40 percent of the floor area in the 523,000 square feet of "pipeline" projects was occupied by August 1, 1985.

2. Environmental Condition

(The environmental setting is described in each chapter on impacts in Section VI)

B. BUILD-OUT OF PRESENT POLICY

The project has been undertaken in response to the rapid level of development which has occurred in recent years, including the projects identified in this report as the "pipeline." With rapid commercial development, has come a concern about the total potential for development allowable under the zoning which is presently applied to the area.

During the initial goal-setting phase of the study, two estimates of maximum growth possible under existing zoning were developed. The first of these

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"build-out" estimates assumed that only applicable floor area ratio [FAR] and height/setback regulations would constrain the maximum growth estimate. Under this "build-out," the Primary Study Area could accommodate a total of 7.7 million square feet of floor area or 4.3 million square feet of floor area in addition to the existing and "pipeline" development. Since any so-called "build-out" would actually be constrained by new development providing some or all parking on-site, the other "build-out" estimate assumed that the interim parking requirements (within the Assessment District portion of the Primary Study Area) would be met in addition to the previously mentioned site development regulations. This alternative "build-out" would amount to 5.2 million square feet, or 1.8 million square feet of floor area in addition to existing and "pipeline" development.

C. CONSISTENCY WITH THE COMPREHENSIVE PLAN

1. Policies Related to the Downtown Study Proposals

The following policies are from the Palo Alto Comprehensive Plan.

Major Proposals of the Plan:

1. Slow down employment growth.
2. Reduce the growth in auto traffic.

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6. Support the mixing of residential uses in commercial and industrial areas.

- Provide incentives for industrial, retail, and office developments to provide all or some residential on the same site or on another non-residentially zoned site.
- Pursue development of residential units on air space over selected public and private parking lots in commercial and industrial areas.

8. Maintain at least the present number of multiple-family rental units.

Employment Objectives:

- reduce employment potential
- reduce commuters' dependence on automobiles
- maintain low employment densities where feasible
- keep existing businesses healthy and attractive
- have industrial and commercial uses in Palo Alto be clean, quiet, and otherwise compatible with the residential character of the City.

1. Continue efforts to reduce employment potential implemented with the 1976 Comprehensive Plan and 1978 Zoning Ordinance.

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Transportation Objectives:

- protect residential neighborhoods from through traffic and especially commuter traffic.
- reduce growth in overall traffic
- reduce peak hour congestion
serve present and future transportation needs safely, efficiently, and reliably

4. Reduce through traffic on residential streets.
5. Avoid major increases in street capacities but undertake critically needed intersection improvements connected with severe traffic congestion or neighborhood traffic intrusion problems or both.
6. Discourage travel at peak hours.
7. Increase the number of persons carried per vehicle.
8. Discourage auto use.
 - make operational and intersection improvements to ease traffic flow on major streets
 - promote car pools, van pools, and bus pools
 - encourage employers to establish transportation coordinator

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positions.

10. Reduce employee or commuter parking in residential neighborhoods.

11. Minimize the need for more long-term parking facilities and encourage short-term shopper parking.

Urban Design Objectives:

- promote visual environments which are of high aesthetic quality and variety, and considerate of each other.

1. Maintain the present scale of the City, but modify those elements which by their massiveness are overwhelming and unacceptable.

- discourage massive single uses through limitations on height and density to protect surrounding uses and community values.

2. Encourage private preservation of buildings which have historic or architectural merit or both.

5. Encourage rehabilitation of aging retail areas to keep them economically healthy.

6. Upgrade standards for El Camino Real, Midtown, and the Circle and Alma

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areas of Downtown.

- permit buildings and commercial uses to encroach on sidewalk areas only where the visual character of the street would be improved and pedestrian space would not be unduly constricted.
- require retail street frontages that contribute to retail vitality
- study a zoning ordinance requirement that ground floor uses in sections of the University Avenue business district be restricted to uses contributing to retail vitality.

Environmental Resources:

11. Ensure compliance with existing noise laws and protection of residents from unnecessary noise.

13. Mitigate impact of air quality problems due to stationary and vehicular sources.

2. Consistency with the Policies

The proposed Project and Alternatives 2, 3, and 4 are in general conformance with these policies and programs, and are superior to the conformance of the present policies (Alternative 5) in all matters relating to the growth in employment, in traffic, and in neighborhood protection. There are several

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policies where the alternatives with the least potential for development would be more consistent with the Comprehensive Plan than those with more development potential. These policies have been highlighted with bold print. The only policies which are not satisfied by any of the alternatives are "reduce peak hours congestion" and "reduce through traffic on residential streets." These policies both call for absolute reductions in traffic, whereas all alternatives will allow increases in traffic. With respect to these two policies which will not be attained by the Project or alternatives, it should be noted that the alternative which will allow the greatest increases in traffic is the No Project alternative, and that all other alternatives and the Project will be superior to present policies.

There are no inconsistencies between the proposed Project or the proposed alternatives and the Comprehensive Plan. There are a few proposed land use map changes, and these are shown in Maps 4, 5, 9 and 10. These land use changes are all consistent with the Comprehensive Plan.

D. RELATIONSHIP TO LOCAL AND REGIONAL PLANS

1. City of Menlo Park

The impact of trips generated by likely development under the Project and Alternative 2, 3, and 4 at the Menlo Park intersection of Middlefield and Willow and on El Camino north of Palo Alto Avenue are discussed in Chapter VI.J. on Transportation impacts.

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V. General Setting and Planning Considerations

Future Menlo Park projects which could affect Downtown Palo Alto are essentially limited to alternative development proposals being considered in an EIR currently under preparation for the St. Patrick's Seminary site. Completion of that draft EIR is expected in early 1986.

2. City of East Palo Alto

The principal growth limits proposals of the Project and Alternatives 2 and 3 are consistent with the policies in East Palo Alto's General Plan. Some traffic generated by development under the Project and Alternatives 2, 3, and 4 that funnels through the University and Middlefield intersection could add traffic along the University corridor in East Palo Alto but the magnitude of this traffic would be substantially less than a comparable segment of traffic generated by development under Alternative 5 (No Project).

3. Metropolitan Transportation Commission

The proposed reductions in commercial development potential under the Project and Alternatives 2, 3, and 4 and the Project proposals to reduce vehicular trip potential are consistent with the recommendations contained in the Metropolitan Transportation Commission's (MTC) Peninsula Route 101 Study.

MTC has published two manuals offering options for ride sharing and transit usage, i.e., the Traffic Mitigation Reference Guide and the Commute Alternatives Manual which could be utilized by the City in implementing the Project's traffic proposals on incentives to reduce "drive alone" trips.

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4. Association of Bay Area Governments (ABAG)

The growth and housing proposals of the Project and Alternatives 2 and 3 that focus future development toward a jobs/housing balance are consistent with the ABAG Regional Plan policy which advocates that each city provide opportunities for individuals to live, work and shop in the same community.

5. Santa Clara County Transportation 2000 Study

The Project's traffic proposal to develop an incentive program to reduce "drive alone" trips is compatible with the Transportation 2000 Study goal of achieving a 30 percent reduction in single occupant automobile commuters. The growth limit proposals in the Project and in Alternatives 2, 3, and 4 are consistent with the Transportation 2000 goal to coordinate land use and transportation planning.

6. 1982 Bay Area Air Quality Maintenance Plan

The Bay Area Air Quality Management District - created by the California legislature in 1955 - is charged with enforcing air quality standards in most of the nine-County San Francisco Bay Region Air Quality standards are set by both the Federal government (the Clean Air Act of 1963, 1970 and 1977) and the State government (the Mulford - Carrell Act of 1969). Some parts of the Bay Area, including large portions of Santa Clara County are classified as non-attainment areas in relation to Federal and State standards for ozone and

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carbon monoxide. The 1982 Bay Area Air Quality Maintenance Plan is designed to bring these areas into compliance with applicable standards by 1987.

The likely impact of cumulative and Downtown Study Project impacts on air quality in the study area are modeled and evaluated in Section VI.C at this EIR. A series of existing, proposed and possible mitigations is also discussed in that section of the EIR.

SECTION VI
ENVIRONMENTAL SETTING, IMPACTS AND MITIGATIONS

A. INTRODUCTION

This section will address in detail areas of environmental concern identified by the Initial Study and will also address areas of concern which subsequent analysis of the Project suggested might involve a significant impact. A copy of the Initial Study is attached as Appendix 2.

B. SOILS AND SEISMICITY

1. Setting

The Primary Study Area is a long-developed commercial area where nearly all properties are already paved or overcovered with buildings. Properties located within the Downtown Study Area are in a seismic area of moderate risk; they are subject to very strong ground shaking and moderately to generally low potential for ground failure due to liquefaction in the event of an earthquake.¹.

2. Impacts

The Project and all alternatives considered would allow some construction of new commercial and residential buildings in the Study Area. While foundations and basements would require some disruption and displacement of soil, the

VI. Environmental Setting, Impacts and Mitigations

primary impact of the project and alternatives on soil conditions is expected to stem from excavation to provide subterranean parking. Presently, the majority of parking spaces in the Study Area are provided at-grade on asphalt covered lots, both public and private. There are, however, three existing public garages which are wholly or partly underground (the Civic Center, Lot Q and Lot J), and about 15 locations within the Primary Study Area where private parking is or will be provided below grade.

Several of the Project parking strategies will affect the amount of soil disruption or displacement to be expected as a result of the project. The Project public parking strategies recommend building at least one additional parking structure and consider building another structure as a mixed use project that could include a food market and housing. The environmental effects of such projects will depend on specific design options selected. For example, to reduce the over-all height of the recently-completed Lot J structure, it was decided to have one level slightly below grade. As a result, more excavation of the site was required than if another design been selected. Full environmental review of the Downtown Study public parking strategies must therefore await specification of the design to be employed in each case.

The Project private parking strategies recommend that new commercial development should provide 100 percent of its parking need on-site, except for:

- (1) certain specified exemptions (see Section III.C.2 for details); and

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(2) an optional "buy-in" program whereby developers unable to provide parking on-site could purchase spaces in a new public structure.

A uniform parking requirement of one parking space per 250 square feet of floor area for all commercial uses within the University Avenue Parking Assessment District is also recommended. The result of these recommendations will generally be to make commercial development within the Assessment District provide on-site parking just as commercial development outside the district and all residential development always has.

The likely amount of soil disruption and displacement resulting from the project growth limits when combined with the project private parking strategies can be estimated as in the first two lines in Table 5. Even if a substantial proportion (20 percent) of required parking spaces are provided at-grade, or otherwise do not require excavation, the proposed project will require between 600 and 1,720 new underground parking spaces. This would translate to between 102,000 and 292,400 cubic yards of soil which would need to be excavated. In addition to the immediate effects of the excavation itself (e.g. increased wind and water-borne soil erosion, soiling of adjacent streets, etc.), excavation of such magnitude might pose the problem of locating suitable receiver sites for the excavated soil.

The alternative growth limits when combined with the project private parking requirements would generally produce as much or more disruption and displacement of soil as the project, with the no project alternative producing

Table 5

Disruption and Displacement of Soil Due to Private Building Activity

SCENARIO	DEVELOPMENT ASSESSED(a)	PARKING SPACES REQUIRED(b)	UNDERGROUND SPACES(c)	SOIL EXCAVATED (Cubic Yards)(d)
1A. Project - Low Range	500 H.U.s	750	600	102,000
1B. Project - High Range	175,000 Sq. Ft. + 500 H.U.s	2,150	1,720	292,400
2. Alternative: 17,500 Sq.Ft./Yr.	350,000 Sq. Ft. + 500 H.U.s	1,450	1,160	197,200
3. Alternative: 70,000 Sq.Ft./Yr.	490,000 Sq. Ft. + 500 H.U.s	2,710	2,168	368,560
4. Alternative: Reduced FAR	350,000 Sq. Ft. + 500 H.U.s	2,150	1,720	292,400
5. Alternative: "No Project" Recent Experience (1981-1984)	1,100,000 Sq. Ft. + 500 H.U.s	5,150	4,120	700,400

Notes

- Includes housing units (H.U.s) projected for Primary Study Area only; excludes allowances for expansions because these would be exempt from parking requirements.
- Based on: (1) Proposed requirement of 1 space per 250 sq. ft. of commercial floor area; and (2) Existing requirements for multiple family residential, averaging to 1.5 spaces per unit.
- Assumes 20 percent of parking will be provided at-grade and not require excavation.
- Based on 170 cu. yds. per underground parking space (average of six recent Downtown commercial projects).

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about 2.4 times as much excavation as the Project high range. The amount of soil disruption is likely to be directly proportional to the amount of new floor area allowed and thus to the number of new parking spaces required.

The project rating system being proposed by the Downtown Study Committee [see Section III.C.6 and VI.G.2b.(2)] would favor projects involving rehabilitation of historic structures and remodelings of other existing structures. This priority system would presumably minimize new soil excavation and maximize rebuilding to current building standards. As such the proposed priority system might be preferable in environmental terms to a lottery on a first come, first served system for deciding project eligibility in the annual growth allocation.

One alternative considered for public parking would reduce soil-related impacts below that of the project. If the City were to purchased vacant lots and existing private parking lots (surface lots) rather than building one or more parking structures [Alternative 3, see Section IV.B.8], disruption and displacement of soil would be minimized. The extent of this impact, however, will not be known until specific design alternatives for parking structures are evaluated.

Because Downtown Palo Alto is located in an area of moderate seismic risk, any commercial or residential growth which concentrates greater numbers of people within the Study Area will commensurately expose that many more people to seismic risk. However, it is difficult to estimate whether these individuals

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would likely be in safer locations and/or structures if they were not concentrated in Downtown Palo Alto. Moreover, one might argue that allowing more growth would result in a larger number of buildings conforming to more adequate current building codes.

3. Mitigations

Existing City project review procedures should insure that soil excavation, removal and relocation methods will be carried out with a minimum of environmental damage. For example, the mitigations recommended in the Air Quality section (below, Section VI.C.4b), to reduce construction emissions should also reduce soil loss due to wind and water erosion. However, other things being equal, the more construction allowed - particularly with on-site parking required - the more disturbance to the soil and potential for erosion. For that reason, the lower amounts of growth allowed by the project are also a mitigation for this impact when compared to several of the alternatives considered.

New construction is subject to the requirements of the Uniform Building Code, portions of which are directed at reducing seismic risk and loss of life or property in the event of an earthquake. Compliance with these requirements should assure that development permitted under the proposed rezoning should not result in increased exposure to seismic hazards.

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In addition, because of potential failure of some older Downtown buildings in the event of an earthquake, the City is in the process of drafting a seismic ordinance which would require mandatory structural investigations of all unreinforced masonry buildings (Category I) and all buildings constructed prior to 1935 and containing 100 occupants (Category II). Such reports would be public information and be filed with the City for public review. Though the structural investigation by themselves will not reduce seismic risk, they may encourage owners to upgrade their buildings and will inform the public and occupants of those buildings what the potential risks are.

1. Palo Alto Comprehensive Plan: 1980-1995
(February, 1981), pp. 66-67

C. AIR QUALITY

1. Setting

The following air quality impact was prepared for the City of Palo Alto by the Environmental Impact Planning Corporation, environmental consultants.

Palo Alto's climate is generally mild, with maximum temperatures averaging in the low 80's Fahrenheit (F) occurring in July and minimum temperatures averaging in the high 30's F in January. Palo Alto is affected by winds from the Crystal Springs and San Bruno gaps. Winds are most often from the northwest and are strongest (10-16 miles per hour) in the afternoon hours between March and October. In the evening the winds tend to shift, blowing more gently (about 6 mph) from the southeast. The most stagnant meteorological conditions occur during cold winter evenings and can lead to build ups of carbon monoxide (CO); in the summer the sunny and hot weather throughout the Bay Area can lead to regional build-ups of ozone.

The Clean Air Act of 1967, as amended, established air quality standards for several pollutants. The standards are divided into primary standards, designed to protect human health, and secondary standards, intended to protect the public welfare from effects such as visibility reduction, soiling, nuisance and other forms of damage. In addition, the State of California has adopted its own standards. The Federal and State standards described in Table 6 provide acceptable durations for specific contaminant levels that are designed to avoid adverse effects within a margin of safety.

Table 6
Comparison Of Federal and State Air Quality Standards

Pollutant	Federal Standards	State Standard	Objective	
Averaging Time	Primary	Secondary		
Ozone 1-hour	0.12 ppm 240 g/m ³	Same —	0.10 ppm 200 g/m ³	To prevent eye irritation, breathing difficulties.
Carbon Monoxide 8-hour	9 ppm 10 mg/m ³	Same	—	To prevent carboxyhemoglobin levels greater than 2 percent.
1-hour	35 ppm 40 mg/m ³	Same	20 ppm 23 mg/m ³	
Nitrogen Dioxide Annual	0.05 ppm 100 g/m ³	Same	—	To prevent health risk and improve visibility.
1-hour	— —	—	0.25 ppm 470 g/m ³	
Sulfur Dioxide Annual	0.03 ppm 80 g/m ³	— —	— —	To prevent increase in respiratory disease, plant damage and odor.
24-hour	0.14 ppm 365 g/m ³	— —	0.05 ppm 131 g/m ³	
3-hour	— —	0.5 ppm 1310 g/m ³	— —	
1-hour	— —	—	0.05 ppm 1310 g/m ³	
Sulfates 24-hour	— —	—	25 g/m ³	To improve visibility and prevent health effects.
Particulate Annual Mean	75 g/m ³	60. g/m ³	30 g/m ³ PM10*	To improve visibility and prevent health effects.
24-hour average	260 g/m ³	150 g/m ³	50 g/m ³ PM10*	
Visibility Reducing Particles	State Standard: One observation in sufficient amount to reduce the prevailing visibility to less than 10 miles when the relative humidity is less than 70 percent.			
Lead 30-day	— —	—	1.5 g/m ³	To prevent health problems.
Calendar quarter	1.5 g/m ³	Same	—	
Hydrogen Sulfide 1-hour	— —	—	0.03 ppm 42 g/m ³	To prevent odor problems.
Vinyl Chloride (Chloroethene) 24-hour	— —	— —	0.010 ppm 26 g/m ³	To prevent health problems.
Ethylene 8-hour	— —	— —	0.1 ppm	To prevent plant damage.
1-hour	— —	— —	0.5 ppm	

*PM10 = Particulate matter ten microns or less in size.

Table 7

Measured Air Quality in Mountain View and Redwood City
1982 - 1984

	1982		1983		1984	
	Mountain View	Redwood City	Mountain View	Redwood City	Mountain View	Redwood City
Ozone (1)	.11/0/.8	0.1/0/1	.16/5/2.5	.17/2/1	.12/0/1.7	.11/0/.7
CO (2)	---	6/0	---	9.6/1	---	5.6/0
NO ₂ (3)	---	.08/0	---	.10/0	---	.09/0
SO ₂ (4)	---	.002/0	---	.002/0	---	.002/0
TSP (5)	---	42/0	---	37/0	---	44/0

(1) The first value is the maximum hourly average concentration in ppm. The second value is the number of days on which a violation was recorded. The third value is the Expected Annual Exceedance (EAE); EAE refers to a three year running average of ozone concentrations adjusted for equipment downtime.

(2) The first value is the maximum 8 hour average in ppm. The second value is the number of days on which a violation was recorded.

(3) The first value is the maximum 1 hour average in ppm. The second value is the number of days on which a violation was recorded.

(4) ibid.

(5) The first value is the annual geometric mean in micrograms per cubic meter. The second number is the number of days on which a violation was recorded.

Source: Bay Area Air Quality Management District, "Air Currents," San Francisco, California, March Issues, 1983, 1984, 1985.

VI.C. Air Quality

Air quality is measured by the Bay Area Air Quality Management District (BAAQMD) at Redwood City and Mountain View. A summary of measurements at these stations for the most recent three years for which data is available is shown in Table 7. A comparison of Tables 6 and 7 indicates that air quality in the Peninsula area generally complies with the air quality standards in Mountain View and Redwood City. One violation of the State standard for total suspended particulates (TSP) was recorded in Redwood City in 1983. Also, ozone air quality in Mountain View was in excess of the Federal standard in 1983 and 1984. It should be noted that elevated CO and TSP concentrations often result from localized emissions, so data collected in Redwood City and Mountain View do not represent conditions in Palo Alto. In contrast, elevated ozone concentrations generally occur over a wide area; ozone levels in Palo Alto are likely to be similar to those in Mountain View and Redwood City.

The principal air quality problems in Palo Alto are elevated concentrations of ozone, CO and TSP. High concentrations of ozone produce eye irritation and respiratory function impairment. High concentrations of CO can impair oxygen transport in the bloodstream, aggravate cardiovascular disease, impair central nervous system functioning and cause fatigue, headache, dizziness and confusion. Long exposure to high TSP concentrations can interfere with respiratory function and, in combination with atmospheric sulfur dioxide (SO₂), produce acute illness.

Studies to identify locations with elevated CO levels have been performed jointly by the Association of Bay Area Governments (ABAG), BAAQMD, and the

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Metropolitan Transportation Commission (MTC). A screening technique was applied to identify locations, called hotspots, where CO standards might be violated. One such location in Palo Alto, the intersection of Page Mill Road and El Camino Real, was selected for CO monitoring in 1983(1). The results indicated that the eight hour average CO standard of 9 parts per million (ppm) was violated at this location. The largest measured violation was an eight hour average of 11.1 ppm, which is 2.1 ppm higher than the applicable standard of 9 ppm. The highest measured 1 hour average was 19 ppm, which is 1 ppm less than the applicable State standard of 20 ppm(2).

As a result of the violations of CO, ozone and TSP standards in various parts of the Bay Area, an Air Quality Plan for the Bay Area was prepared in 1979 as part of the Environmental Management Plan by ABAG and other governmental agencies(3). The 1979 Plan contains strategies for the long term attainment and maintenance of the air quality standards. It includes measures to reduce emissions from stationary sources and automobiles and suggests transportation control measures to reduce automobile emissions. The air quality problems addressed in 1979 Plan are photochemical oxidants (principally ozone), CO and TSP. In 1982 the Plan was updated to assure compliance with ozone and CO standards by 1987(4). The key CO strategies included in the Plan involve Inspection and Maintenance (I&M) of motor vehicles and various transportation controls. In 1984, a mandatory statewide I&M program was adopted. It is expect to result in a 16 percent reduction in CO in the Bay Area.

The Downtown Primary Study Area is a mixed commercial district with pedestrian

VI.C. Air Quality

oriented retail and service uses predominately in the central core area along University Avenue, areas of more strictly office use generally outside the central core, and an area of auto-oriented services a few blocks south of University Avenue. There are some multi-family residential projects in the Primary Study Area and, particularly on the edges of the commercial districts, a few single family structures. There are no schools in the Primary Study Area, but there is one day care center near the corner of Hamilton and Waverley. Several facilities for senior citizens are located within the Primary Study Area, including the Palo Alto Senior Center and the Casa Olga Intermediate Care facility. Public open spaces are located at Lytton Plaza, Cogswell Plaza, and the Civic Center Plaza.

The Peripheral Study Area is primarily a residential district, with multi-family structures composing the largest proportion of housing units, but with single family units increasing toward the edges of the area. The Peripheral Study Area has one elementary school along Middlefield Road and a day care center near Hamilton and Webster. Several large residential/medical facilities for senior citizens are located in the area, particularly Lytton Gardens on the block near University and Middlefield, and Channing House. A major health care facility, Palo Medical Clinic, is located south of Channing Avenue. Several neighborhood parks are located within the area, and two Citywide facilities - El Palo Alto Park and El Camino Park are located just outside the Peripheral Study Area near the conjunction of Alma Street, Palo Alto Avenue and El Camino Real.

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Given the above-described location of uses in the Primary and Peripheral Study Areas in relation to major trafficways and areas of traffic congestion, a series of sensitive receptors locations was selected for analysis. These sensitive receptor locations are identified on Map 15.

2. Impacts

(a) Predicted Air Quality Impacts

(1) Construction

Particulate matter (dust) would be generated by equipment and vehicles during clearing, earthmoving, grading and construction of buildings. Dust would also be emitted by the action of the wind over exposed earth surfaces. These construction activities would create a temporary increase in dustfall, and therefore TSP concentrations, near the site. Although data and models to accurately predict dust emissions in the Bay Area are not available, measurements taken during apartment and shopping center construction in the Southwest have indicated that approximately 1.2 tons of dust per acre per month of construction activity are emitted. More frequent cleaning of exposed surfaces would be needed in the immediate area. People with existing respiratory ailments may be aggravated by the increased dust. Because the area is heavily used, the overall population exposure to construction-generated dust would be significant. The State and



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MAP 15 -- SENSITIVE RECEPTORS FOR AIR QUALITY ANALYSIS

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Federal 24 hour average particulate standards could be violated in the vicinity of construction sites.

(2) Local CO Impacts

Air quality impacts would result from changes in traffic volumes and/or speeds that would result from the proposed project alternatives. On the local scale, CO is the most important pollutant since violations of the air quality standards seldom occur due to motor vehicle traffic. To assess the project's impact in CO concentrations, a diffusion model developed by Caltrans and recommended by the California Air Resources Board (CARB) and the BAAQMD, called CALINE3,(5) has been applied to peak hour and peak eight hour traffic volumes at significantly impacts intersections in the project vicinity. The assumptions and conditions used in the modeling are described in Appendix 6.

Table 8 shows predicted one hour and eight hour average CO concentrations under existing and future conditions for each project alternative assuming worst case meteorological conditions. The modeling results indicate that the State and Federal 8 hour average CO standards are estimated to be exceeded under 1985 conditions at all of the intersections studied except University/Middlefield.

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The State 1 hour average standard is estimated to be exceeded under 1985 conditions at El Camino/Alma and University/El Camino/Alma. Although violations of the 1 hour standard are not commonly found in the Bay Area, the proximity of the receptor to several heavily travelled streets, in each case including El Camino and Alma, may result in significantly elevated CO concentrations under worst case meteorological conditions.

In 1995, the State and Federal 8-hour average CO standard would be exceeded at El Camino/ Alma and University/El Camino/Alma. The Project and all of the alternatives are estimated to result in exceedance of the 8 hour average standard at these locations. The predicted differences between the Project and various alternatives is relatively small, a maximum of 0.3 ppm between the Project low range and the No Project alternative.

CO concentrations at all the other modeled locations are predicted to be within all air quality standards in 1995. The general improvement in CO air quality is due primarily to ongoing State and Federal regulations governing motor vehicle emissions rates.

Concentrations decrease with increasing distance from the source, so concentrations in offices, commercial facilities and other off-street locations would be lower than those shown in Table 3. However, because CO concentrations have been found to be elevated over

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Table 8

Carbon Monoxide Concentrations at Affected Intersections (1,2)
(in parts per million, ppm)

LOCATION	1985 BASE & PIPELINE 1HR 8HR	1995 PROJECT				1995 ALTERNATIVES			
		1A		1B		2	3	4	5
		LOW RANGE	HIGH RANGE	1HR	8HR	1HR	8HR	HR	8HR
UNIVERSITY/ EL CAMINO & ALMA	25.7 16.3	21.3	11.6	21.9	11.9	21.5	11.7	22.3	12.1
UNIVERSITY/ MIDDLEFIELD	14.5 8.8	11.5	6.9	11.7	7.0	11.6	7.0	11.7	7.0
UNIVERSITY/HIGH EL CAMINO/ALMA	15.4 9.4	12.5	7.6	12.8	7.8	12.6	7.7	12.9	7.9
Background	20.5 13.0	15.7	9.8	15.9	10.0	15.8	9.9	15.9	10.0
STANDARD	10.5 6.0	8.5	4.8	8.5	4.8	8.5	4.8	8.5	4.8
	20 9	20	9	20	9	20	9	20	9

(1) Details of the modeling procedures are shown in Appendix A.

(2) Values higher than the applicable standard shown in the bottom row are considered to be significant.

(3) The tunnel section of University was modeled as an open "cut section" because CALINE3 does not permit direct modeling of tunnels. As a result, CO values for the intersection are not considered as reliable as the other values in the table, since CALINE3 applies more appropriately to the other intersections. It is possible that actual values could be higher than those shown. On site monitoring is recommended to qualify CO levels at this location.

(4) Air quality levels and impacts of Alternative 4 assumed to be equivalent to Project 1B - High Range.

relatively large portions of an urban area under adverse meteorological conditions, concentrations at other locations, especially along University and along University and along El Camino in the Downtown area are likely to approach those shown in Table 8.

The results shown in Table 8 may be relevant to consideration of the housing incentives and land use recommendations for the area near Alma Street north of Lytton Avenue contained in both the Proposed Projects and Alternatives 2 and 3. Both the Project and Alternatives 2 and 3 would allow increasingly dense residential uses as one approaches Alma Street. As Table 8 indicates, both the University/Alma and El Camino/Alma intersections show violations of existing carbon monoxide standards under 1985 base conditions. Although background CO concentrations are expected to decrease by 1995, under both the Project and the alternatives considered these two intersections are predicated to remain in violation of CO standards.

(3) Regional Air Quality Impacts

The Project would contribute to the regional air pollution burden by increasing motor vehicle travel and by increasing the amount of commercial activity in the project area. The analysis herein assumes that all commercial development occurs in the form of retail land uses. Table 9 presents the emissions which would result from project generated traffic. Table 10 shows estimates of on-site emissions due

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to anticipated residential and commercial activity; these emissions are largely from natural gas burned for space heating. Table 11 shows these total emissions from both motor vehicle and on-sited sources. Table 12 shows County and regional air pollution emissions estimates prepared by the BAAQMD. The significance of these impacts is discussed in section (b) below.

b) Determination of Significance of Predicted Air Quality Impacts

The BAAQMD recommends that the significance of predicted air quality impacts be evaluated with respect to four criteria (6). The predicted air quality impacts of the proposed project are discussed with respect to each below:

(1) State and Federal Air Quality Standards

Each of the project alternatives would be deemed to have significant air quality impacts insofar as violations of CO standards are predicted at certain locations as shown in Table 8. It should be noted, however, that the no project alternative would produce the greatest impacts.

(2) Emissions levels which trigger Best Available Control Technology (BACT) requirement for a stationary source

Project-generated motor vehicle traffic would result in a level of emissions which would exceed the BACT emissions levels for HC, NOx and TSP. This would occur for any of the alternatives, although there are appreciable differences in the amount of the excesses as shown in Table 4. The No Project alternative would produce the greatest impacts.

(3) Total project emissions 1 percent of total County emissions or transportation related sources exceed 1 percent of County transportation related emission

None of the project alternatives would result in emissions which would be significant under either of these two criteria for CO, HC and NOx. The no project alternative would result in emissions of more than 1 percent of country-wide transportation totals of TSP and SOx. Thus the no project alternative would be significant with respect to this criterion.

(4) Population and employment projects for the subregion which are complied in Projects '83

Each of the project alternatives represents a reduction in population

Table 9

1995 Air Pollution Emissions Due to Motor Vehicle Traffic (1)
(tons/day)

POLLUTANT	PROJECT		ALTERNATIVES			
	1A	1B	2	3	4	5
	Lower Range	High Range	17,500 Sq.Ft./Yr.	70,000 Sq.Ft./Yr.	Reduced FAR(3)	No Project
CO	1.71	2.47	2.09	2.78	2.47	4.08
Hydrocarbons(2)	0.19*	0.28*	0.24*	0.32*	0.28*	0.48*
Nitrogen Oxides	0.08*	0.12*	0.10*	0.14*	0.12*	0.21*
Sulfur Oxides	0.03	0.04	0.03	0.05	0.04	0.07
TSP	0.30*	0.46*	0.38*	0.52*	0.46*	0.78*

(1) The estimates for CO, Hydrocarbons and Nitrogen Oxides are based on the California Air Resources Board's (CARB) URBEMIS#1 emissions analysis model (CARB, Air Quality Analysis Tools, Sacramento, California, March 1983). This program does not include the expected effects of the current I&M program. The I&M program is expected result in a further reduction in hydrocarbons of 13 percent and a 19 percent reduction in CO generated by motor vehicles.

(2) Emission of greater than .075 tons/day of any of these pollutants except CO is deemed significant with respect to BACT thresholds. These are identified in the table with an asterisk.

(3) Air quality levels and impacts of Alternative 4 assumed to be equivalent to Project 1B - High Range.

Table 10

1995 Air Pollution Due to On-site Emissions (1)
(Tons/Day)

POLLUTANT	PROJECT		ALTERNATIVES			
	1A	1B	2	3	4	5
	Low Range	High Range	17,500 Sq.Ft./Yr.	70,000 Sq.Ft./Yr.	Reduced FAR	No Project
CO	0.02490	0.02505	0.02498	0.02512	0.02505	0.02538
Total Hydrocarbon(2)	0.04715	0.04721	0.04718	0.04724	0.04721	0.04734
Nitrogen Oxides	0.00973	0.01051	0.01012	0.01082	0.01051	0.01213
Sulfur Oxides	0.00052	0.00053	0.00052	0.00053	0.00053	0.00053
TSP	0.00289	0.00297	0.00293	0.00300	0.00297	0.00297

(1) Residential emissions factors were taken from the BAAQMD, Air Quality Impact Assessment Guidelines For Projects and Plans, Draft Copy, San Francisco, California, April 1985. Commercial emission factors were based on estimates of natural gas consumption. Consumption estimates were based on compliance with Title 24 limitations on fuel use (assuming 10 percent of energy budget is for natural gas). Emissions factors were taken from USA EPA Compilation of Air Pollutant Emission Factors, AP-42, Research Triangle Park, North Carolina, 2/76. The calculations have been carried out to up to 5 decimal places, although the emissions estimates should not be considered accurate to that level of detail. The added places are shown to provide a comparison between the alternatives

(2) Emission of greater than .075 tons/day of any of these pollutants except CO is deemed significant with respect to BACT thresholds.

Table 11

1995 Total Project-Generated Air Pollution Emissions (1)
(tons/day)

POLLUTANT	PROJECT		ALTERNATIVES			
	1A	1B	2	3	4	5
	Low Range	High Range	17,500 Sq.Ft./Yr.	70,000 Sq.Ft./Yr.	Reduced FAR	No Project
CO	1.73	2.50	2.12	2.80	2.50	4.11
Hydrocarbons(2)	0.24*	0.33*	0.29*	0.37*	0.33*	0.53*
Nitrogen Oxides	0.09*	0.13*	0.11*	0.15*	0.13*	0.22*
Sulfur Oxides	0.03	0.04	0.04	0.05	0.04	0.07
TSP	0.31*	0.46*	0.38*	0.52*	0.46*	0.78*

(1) The entries in this table are the sums of the corresponding entries in Tables 4 and 5. Slight differences are due to rounding.

(2) Emissions of any of these pollutants, except CO, greater than .075 tons per day (each considered individually) are deemed "significant" under the Draft BAAQMD guidelines. These are identified in the table with an asterisk.

(3) Includes on-site hydrocarbon emissions as reactive, a conservative assumption.

Table 12

County and Regional Air Pollution Emissions
(tons/day)

SOURCE	CO	HC	NOx	SOx	TSP
1982 Santa Clara County (All sources)	750	146	93	9	122
1982 Santa Clara County (Transportation only)	699	76	72	5	64
1982 Bay Area-wide (All sources)	2918	615	513	135	523
1982 Bay Area-wide (Transportation only)	2686	302	287	35	244
1995 Bay Area-wide (All sources)	2160	532	486	195	708
1995 Bay Area-wide (Transportation only)	1450	142	183	28	351

Source: Bay Area Air Quality Management District, Air Quality Impact Assessment Guidelines for Projects and Plans, Draft, San Francisco, CA., April 1985, pages VI-3 and VI-6.

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and employment from the levels assumed in Projections '83. Therefore each of the alternatives is consistent with the 1982 Air Quality Plan and would be deemed "non-significant" with the respect to this criterion.

c) Effect of Larger Exemption for Remodelings and Expansion

The analysis described above assumes traffic levels based on an estimated 20,000 square feet to be built by 1995 under the small site exemption provision. The consultant also estimated the affects on air quality of two levels of traffic that might result from a more liberal remodeling and restoration exemption: 30,000 square feet and 114,000 square feet above the 20,000 square feet included in the original modeling. Results of this analysis are on file with the Palo Alto Planning Department (letter from Dr. Richard I. Pollack, October 29,1985, with accompanying tables). Conclusions of the significance of the results are summarized by the consultant in the following paragraph.

For the case involving 30,000 additional square feet of development the conclusions regarding the significance of total project emissions and total project transportation emissions (items 2 and 3 in Section VI.C.2.b above) would not change. For the case involving 114,000 additional square feet of development one additional exceedance of a threshold is predicted to occur. The predicted transportation emissions of sulfur dioxide for the Project Lower Limit would also equal 1% of the corresponding County total.

3. Mitigations

Predicted air quality impacts of the project and alternatives have been shown to meet several criteria of significance and thus to be considered as significant, adverse environmental impacts. Since the air quality impacts are predictions (albeit based on the best available data and models) rather than actual, measurements, it may be that better data on existing pollutant levels will show a different picture. The City of Palo Alto, as part of its Citywide Land Use and Transportation Study, is currently cooperating with the Bay Area Air Quality Management District to obtain accurate and reliable data on air pollution throughout the Palo Alto area. This includes installation of a continuous carbon monoxide monitoring system to be in place during the critical winter months (November - January) of the 1985-86 season at the Palo Alto Senior Center close to corner of University and Bryant. These and other data from the monitoring program will be an important check on the accuracy of data used in this EIR and thus on the reliability of the predicted air quality impacts. However, until these data are collected and analyzed, the City should - on the basis of the predictions in this EIR - consider an aggressive program to mitigate the predicted air quality impacts.

a) Motor Vehicle Emissions

Table 13 lists a comprehensive set of mitigation measures suggested by the Bay Area Air Quality Management District. As can be seen from the right-hand column, a large number of the suggested mitigations are already

Table 13

Air Quality Mitigations: Suggested Measures and City/Project Actions

SUGGESTED MITIGATION	CITY/PROJECT ACTION
<u>Land Use Policies:</u> Zoning Map and Text Provisions	
-Alternate, Low Traffic Generating Uses	Project Growth Strategy for Housing Incentives
-Transit Oriented Land Use	Project Land Use Strategy for Housing Near Alma Street
-Mixed Land Uses	Existing Housing Element Policy (#11) to Support Mixing of Residential Uses in Commercial and Industrial areas.
Growth Management/Phase Development	
Special Use Permit Requirements	Project (Alternatives 2 and 3) Growth Strategies: Annual Growth Limits
-Control of high emission uses/situations	Existing Conditional use permit requirement and distance limits on drive-in and drive-up facilities in all commercial zones.
<u>Physical Facilities</u>	
Bicycle/Pedestrian Facilities	
-Bike Lanes	Existing City Bikeway System
-Bike Storage Facilities	Existing public lockers; existing ordinance requires private bike parking facilitates; Project Parking Strategy "8-Point Program" would convert some parking spaces for bikes/motorcycles on petition basis.
-Sidewalks and Curbs/Pedestrian Emphasis	Existing Pedestrian District Ordinance and Design Guidelines; Project Traffic Strategy would enhance pedestrian amenities and safety.
-Street Design Standards	Existing Pedestrian District Ordinance and Design Guidelines
-Intra-Block Walkways	Existing alley system; alley enhancement to be discussed by Urban Design Study

Table 13

Page 2

SUGGESTED MITIGATION	CITY/PROJECT ACTION
<u>Physical Facilities (Continued)</u>	
-Shower and Locker Facilities	Existing zoning ordinance requirement for offices (10,000+ sq.ft.) and Retail (25,000 sq.ft.) in all commercial zones
Street/Intersection Improvements	See Transportation Mitigations
Special Transit System	-
Subdivision Ordinance Dedications	-
<u>Transportation Related Management Actions</u>	
Transit Improvements/Amenities	
-Dedicated bus turnouts	Existing bus stops on Lytton, Hamilton and University
-Transit amenities (e.g. shelters)	Existing shelters on Hamilton and University
-Subscription Bus Service	-
-Shuttle Bus	-
-Paratransit within project	-
-New/Relocated transit stops	-
Ridesharing Incentives	
-covered carpool parking	Project parking "8-Point Program"
-Subsidy for employee carpools	Project parking "8-Point Program": Involve employers in parking management
-Employer ridesharing plan	-
-On-site fuel for carpools	-
-Alternate work schedule	-

Table 13

Page 3

SUGGESTED MITIGATION	CITY/PROJECT ACTION
Transit Incentives	
-Subsidy for employee fares	Project Parking "8-Point Program: Involve employers in Parking Management"
-Sale of transit tickets	-
-Free transit passes	-
-New/expanded bus service	Project Traffic Strategy: Incentive program to reduce drive-alone trips, including more emphasis on need for express bus service to serve Downtown
-Transit operation subsidy	-
Traffic Flow Improvements	Project Traffic Strategy to Improve Downtown Circulation: e.g., signal timing, signage, etc.
Parking Regulations	Project Parking "8-Point Program" to use existing parking supply more effectively.
Area Parking Permit	Project Parking "8-Point Program"; discourage displacement of parking into surrounding residential/neighborhoods e.g., by on-street permits on some commercial district streets.
Auto Free/Limit Zone	-
Street Closings	Project Traffic Strategy to consider closure of Florence Street in conjunction with Parking Lots S/L/F
<u>Siting and Design Requirements</u>	
Buffers/Setbacks for Sensitive Receptors	
-Landscaping	-
-Buffer Strips	-

Table 13

Page 4

SUGGESTED MITIGATION	CITY/PROJECT ACTION
Design Review/Standards	-
-Specific site plan/building/parking design	-
-Parking behind stores	Project Parking Strategy (within Assessment District) and existing ordinance (outside Assessment District) requiring 100 percent of parking need be provided by new development (usually on-site)
-Varied Building setbacks/height for pollutant dispersion	-
Special Use Permit Criteria	-
Subdivision Ordinance Standards	-

Source

a. Adapted from Tables IX-B-4 and IX-D-1 in Air Quality Impact Assessment Guidelines for Projects and Plans: Draft Copy (San Francisco: Bay Area Air Quality Management District, April, 1985).

in place in existing City programs and ordinances and are integral parts of the proposed project. Those suggested mitigations not already in place or recommended as part of the proposed project (marked with a - in the right-hand column) could be considered as part of an expanded mitigation program specifically directed at reducing predicted air quality impacts. It should be noted, however, that some of the additional measures were considered by the Downtown Study Committee (although not specifically in the context of air quality) and rejected as being infeasible at this time. (e.g. a special transit system for Downtown).

b) Construction Emission

During clearing, grading, earth moving and other site preparation activities, watering exposed earth surfaces can reduce emissions by about 50 percent. Upon completion of these activities, measures to reduce erosion should be undertaken. These include replanting, spreading soil binders, and repeated soaking as needed to maintain a crusty surface.

During construction, watering should be continued on exposed earth surfaces. Watering should be done in late morning and at the end of the day. Frequency of watering should be increased if windspeed exceeds 15 mph.

The contractor(a) should designate a person or persons to monitor the dust control program and implement the above dust control strategies.

c) Effect of Proposed Mitigations

Federal, State and regional programs are expected to reduce background levels of major pollutants such as carbon monoxide substantially by 1995. The lower the amount of growth allowed in Downtown Palo Alto on the more successful the project strategies to reduce vehicle trips, the more likely all location in the Downtown area will meet federal and State air quality standards by 1995. However, it is not possible to predict precisely the combined effects of the project strategies seen as mitigation measures for the predicted air quality impacts in 1995.

Since development already approved for Downtown Palo Alto (and especially the motor vehicle traffic likely to be produced by this development) is predicted to have significant adverse air quality impacts at several locations when all these projects are completed and occupied, in the short run mitigations should focus on trip reduction and circulation improvement measures. Several are included as parts of the Project and as transportation system mitigation measures (see Section VI.J). However, it is not possible to predict how great a reduction in pollutant concentrations such mitigations will have. It seems reasonable, however, for the City to follow closely the results for the air quality monitoring to be done in Palo Alto in conjunction with the Bay Area Air Quality Management District and adopt more stringent mitigations if indicated by the results of that study.

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The air quality analysis has shown that exceedances of air quality standards for several of the major pollutants will occur regardless of the Project or alternatives. This is due primarily to the predicted cumulative effects of development already approved in Downtown Palo Alto. [As noted above, these predictions also depend on assumed background levels of certain pollutants, especially carbon monoxide; more adequate data on actual background levels in Palo Alto may alter these predictions.]

Projections of 1995 air quality conditions (including the effects of the Project - on alternatives - plus the cumulative effects of regional through traffic) show that exceedance of air quality standards will continue to occur at that date. While the mitigation measures suggested above may reduce pollutant levels below those predicted, it is possible that the mitigations are not sufficient to reduce cumulative air quality impacts to an acceptable level for all portions of the Study Area.

For these reasons, in taking action on the Project, it will be necessary to balance the benefits of allowing additional development in the study area against the projected adverse traffic impacts. This issue is discussed further in Chapter VIII, Significant Unavoidable Adverse Impacts.

REFERENCES

1. Bay Area Air Quality Management District, Identification of Potential CO Hotspots in the San Francisco Bay Area, San Francisco, California, 1980.
2. Association of Bay Area Governments, Air Quality Tech Memo #40, Berkeley, California, 1981.
3. Association of Bay Area Governments, Bay Area Air Quality Management District and Metropolitan Transportation Commission, 1979 Bay Area Air Quality Maintenance Plan, Berkeley, California, 1979.
4. Association of Bay Area Governments, Bay Area Air Quality Management District and Metropolitan Transportation Commission, 1982 Bay Area Air Quality Maintenance Plan, Berkeley, California, 1982.
5. Benson, Paul E., CALINE3 - A Versatile Dispersion Model for Predicting Air Pollutant Levels Near Highways and Arterial Streets," Report No. FHWA-CA-TL-79-23, California Department of Transportation, November 1979.
6. Bay Area Air Quality Management District, Air Quality Impact Assessment Guidelines for Projects and Plans -- Draft, San Francisco, California, April 1985.

D. DRAINAGE

1. Setting

Nearly all properties in the Primary Study Area are already covered with existing structures or paved over with impermeable surfaces. There are a few properties which are not so developed or which contain landscaping on uncovered yard areas.

All of the Primary Study Area and most of the Peripheral Study Area is classified as Zone "B" on federal flood insurance maps.¹ Properties in this zone are subject to flooding in the event of a 100-500 year storm.

Ground water levels in the study area are generally 25 feet or more. Recent developments in the Downtown area have generally limited themselves to two underground levels and thus have not penetrated the water table. The Civic Center garage, however, has three underground levels and requires constant pumping of sub-soil water.

Storm sewer drainage in the Primary Study Area relies primarily upon a storm line (15 inches to 24 inches diameter) running almost the entire length of the University Avenue Primary Study Area. Additional storm pipes at Cowper and Webster intercept storm flows from University Avenue area. Two smaller sub-areas drain eastwards into storm lines at Ramona/Forest and Cowper/Hamilton. It would be accurate to state that the University Avenue storm system is

significantly undersized.²

The storm sewer systems in the Peripheral Study Area also do not have sufficient capacity.³ Few of the Palo Alto existing down stream drainage trunk systems are able to convey the runoff rates consistent with a ten year storm reoccurrence. The residential area north of University Avenue is particularly deficient in terms of available storm drainage pipelines. Apart from stormlines down Everett Avenue (between Waverley Street and Webster) and Byron Street, the remaining water shed area (up to Alma Street) has no storm pipes. In certain areas the water must flow along street gutters up to six blocks before entering an adequate storm system. Problems such as blocked half moon culverts have persisted for years. This frequently causes localized ponding at certain street intersections during rainy weather.

The City has plans to up-grade storm sewer capacity in the Primary and Peripheral Study Area over a number of years. Most immediately, a new trunk storm line, ranging in size from 27 inches to 48 inches pipe will be installed down Everett Street to relieve the existing overloaded drain on University Avenue and provide trunk capacity for the presently undrained area northwest of Lytton Avenue. The new Everett Street drainage improvements are scheduled for construction in the 1988 Capital Improvements Program (CIP). Drainage of small easterly sub-areas of the Primary Study Area are dependent upon the installation of major storm lines traversing Forest Avenue and Lincoln Avenue. Construction of these lines is not scheduled in the CIP for at least ten years;

therefore, disposal of runoff from this area can only be discharged into existing stormlines and measures such as storm detention techniques would seem to be the only interim solution.

2. Impact

Since the majority of parcels in the Primary Study Area are already developed with impermeable surfaces, storm water run off characteristics are unlikely to change during future development, whatever growth scenario is assumed. However, the project parking strategies could indirectly lead to drainage system impacts if underground parking garages penetrate the water table. The Palo Alto Department of Public Works is concerned that should pumping of sub-soil water (other than seepage water) from water table sources becomes a common practice, it will seriously jeopardize the already overloaded storm pipe system.⁴ The extent to which pumping in such structures could affect the storm drain system depends on the water table level and the depth and overall size of the subterranean portion of a structure (i.e., its design).

Alternative parking strategies recommending City purchase of existing private surface lots for parking, could decrease the need to build structures which would penetrate the underground water table. Nonetheless, the specific impact of such structures can only be accurately assessed when a specific design is available.

3. Mitigations

The likely mitigation of this potential impact would be to prohibit all sub-surface parking construction which requires regular pumping of sub-soil water. A limit of two underground levels for basement structures would ordinarily fulfill this goal.

Location of most properties in Study Area in flood zone "B" means that flood hazard mitigation measures are appropriate for any new construction in the Study Area allowed by Project or Alternative strategies. It is recommended that floor slabs must be set at no less than one foot above existing ground levels.⁵

FOOTNOTES

1. Flood Insurance Rate Map: City of Palo Alto California. Washington, D.C. U.S. Department of Housing and Urban Development, Federal Insurance Administration, February 15, 1980.
2. Jim Harrington (City of Palo Alto, Department of Public Works, Supervising Engineer), "Downtown Palo Alto Study, Drainage Concerns," Memo to the Planning Department, September 18, 1985.
3. Ibid.
4. Ibid.
5. Ibid.

E. NOISE

1. Introduction

This section presents a traffic noise study for the Downtown area of Palo Alto, prepared for the City of Palo Alto by Earth Metrics, Inc. The existing sound levels were determined by calculations based on the traffic data provided by the City of Palo Alto. Also, the future sound levels were determined from the existing levels with adjustments based on the traffic data provided for various development alternatives. The levels were evaluated against the standards of the Palo Alto Noise Element. References is also made herein to state and federal standards. Mitigation measures were developed as appropriate and are presented herein.

2. Acoustic Setting

a) Sensitive Receptors

Sensitive receptors in the project area include primarily residential facilities. Specifically, the following receptors have been identified by the City of Palo Alto for particular consideration:

1. Any and all residential zones.
2. Lytton Gardens senior housing complex plus adjoining luxury retirement community (Webster House).

3. Addison Elementary School.
4. High rise residential complex near Alma Street and Palo Alto Avenue.
5. El Camino Park - 11.5 acre public park.
6. Infill housing/mixed use project near Alma Street and University Avenue.
- 7a. Current CC zone north of Lytton Avenue (potential rezoning area).
- 7b. Current CS zone generally south of Forest Avenue (potential rezoning area).

The receptors describe above, and land use in the study area, are shown in Map 16.

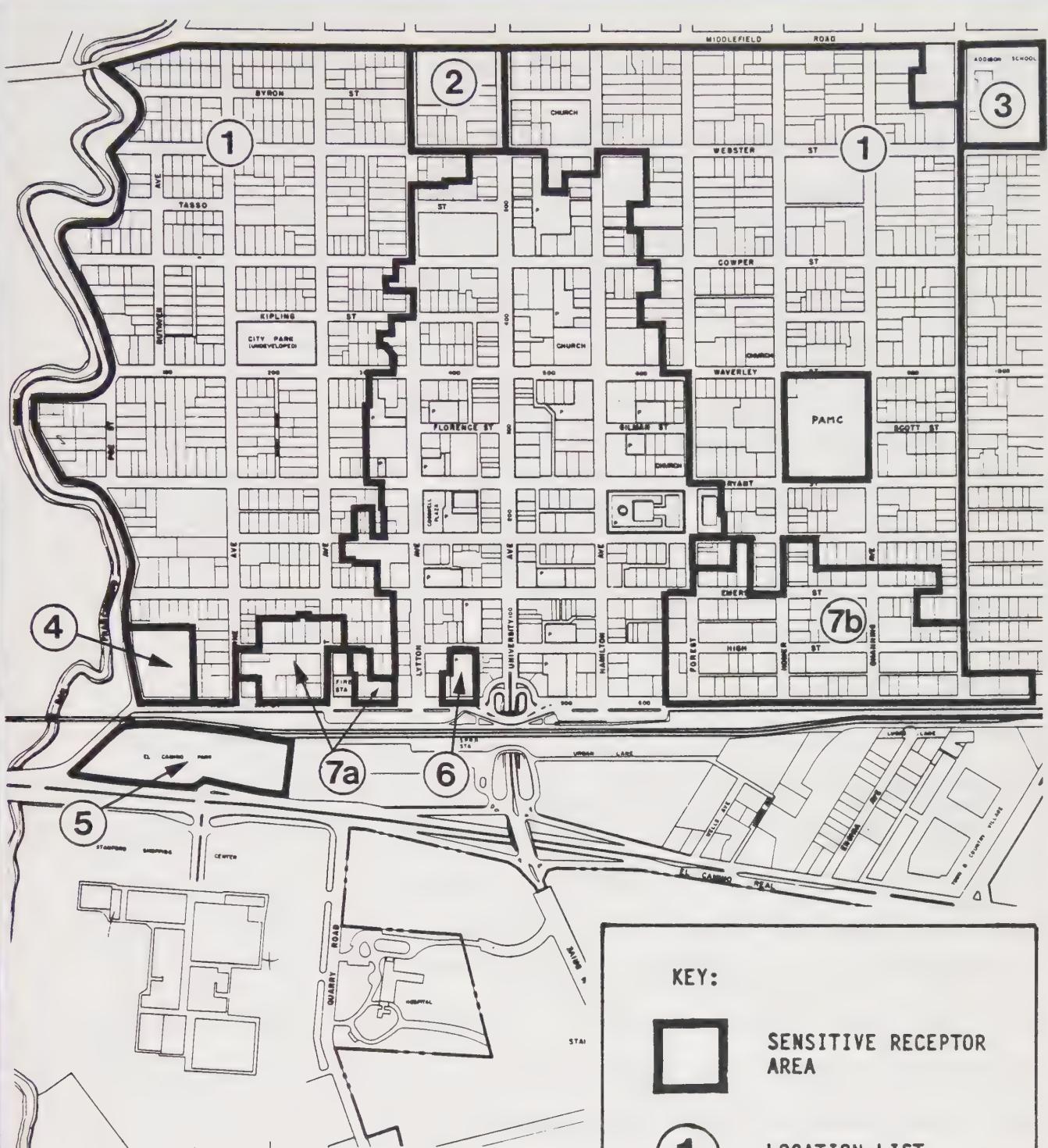
b) Noise Sources

The primary sources contributing to the noise environment are the vehicular traffic. However, some additional noise originates from train traffic on the Southern Pacific tracks.

c) Noise Standards

The noise standards applicable to the project are the "Recommended Average Daytime L10 Noise Levels," shown in Table 14.

The L10 noise level is the level exceeded only 10 percent of the time.



DOWNTOWN STUDY EIR

MAP 16 -- SENSITIVE RECEPTORS FOR NOISE ANALYSIS



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The recommended maximum levels are based upon preventing noise interference with human activities and are well below levels which could damage hearing. The indoor standards apply to noise produced by outdoor noised sources. Residential outdoor levels should be 10 dBA lower in the evening than in the daytime.

TABLE 14
PALO ALTO NOISE ELEMENT STANDARDS

LAND USE	RECOMMENDED AVERAGE DAYTIME L10 NOISE LEVELS	
	SUPERIOR	ACCEPTABLE
Light Industrial-Outdoor	65 dBA	75 dBA
Commercial/Office		
Outdoor	60 dBA	70 dBA
Indoor	45 dBA	55 dBA
Public/Park		
Outdoor	55 dBA	65 dBA
Indoor	45 dBA	55 dBA
Residential		
Outdoor	55 dBA	65 dBA
Indoor	40 dBA	50 dBA

State and federal noise standards for residential land use include the California Noise Insulation standards, Title 25, and the FHWA standards. The Title 25 and FHA standards use the Community Noise Equivalent Level (CNEL) and Day and Night Average Sound Level (Ldn) noise descriptors, respectively. The CNEL and Ldn are approximately equal to each other numerically for normal traffic noise. Title 25 identifies an exterior criteria level of 60 dBA CNEL, and specifies an interior noise limit of 45 dBA. The FHWA standards use an

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exterior limit and criterion level of 65 dBA. For the roadways under consideration on this study, the L10 is approximately equal to the CNEL and Ldn.

d) Existing Sound Levels

To quantify the existing traffic noise levels, calculations were made, using the traffic data provided, in accordance with procedures of the Federal Highway Administration (FHWA, 1978). The results obtained from the calculations are presented in Table 15. These values apply at typical setback distances from the roadways.

Thus, as indicated by the results in Table 15, at residential land uses along Lytton Avenue, Hamilton Avenue, Middlefield Road, University Avenue and Alma Street, the calculated existing L10 levels are 65 dBA to 67 dBA. Along Middlefield Road south of Willow Road and along Alma Street south of Homer Avenue, the L10 levels are 66 dBA and 67 dBA respectively, and therefore 1 dBA and 2 dBA, respectively, in excess of the 65 dBA limit.

At Lytton Gardens, the L10 levels on Middlefield Road and University Avenue sides are 64 dBA and 65 dBA, respectively, and in compliance with the 65 dBA limit for residential land use. On other sides of the Lytton Gardens/Webster house complex, the sound levels are calculated to be several dBA lower than those described above, and in compliance with the 65 dBA limit.

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At Addison Elementary School along Middlefield Road, the existing L10 is 65 dBA at 25 feet from the curb.

TABLE 15
EXISTING TRAFFIC NOISE LEVELS

ROADWAY SEGMENT	DAYTIME L10 LEVEL, dBA
E1 Camino Real, north of Palo Alto/Alma	71
Alma Street, east of E1 Camino Real	68
Lytton Avenue, west of Middlefield	65
University Avenue, Alma to E1 Camino Real	69
University Avenue, west of Middlefield	65
E1 Camino Real, south of University	70
Hamilton Avenue, west of Middlefield	65
Middlefield Road, south of Hamilton	65
Alma Street, south of Homer	67
University Avenue, east of High	65
University Avenue, east of Guinda	68
Middlefield Road, south of Willow	66

Source: Earth Metrics Incorporated, 1985.

At the Palo Alto development, the existing L10 at the building setback along Alma street is 64 dBA, and in compliance with the 65 dBA limit.

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At E1 Camino Park, the L10 sound level due to Alma Street traffic sources is 65 dBA, and equal to the exterior noise goal, at a distance of 50 feet from the curb. Also at the park, the L10 sound level due to E1 Camino Real traffic sources is 65 dBA at a distance of 110 feet from the curb.

For residential uses along Alma Street near University Avenue, the L10 is 68 dBA and therefore 3 dBA in excess of the 65 dBA limit which applies to residential land use.

The noise level from Southern Pacific Railroad train operations at the west side of the study area would not contribute significantly to the L10 noise level, due to the short duration of the exposures.

3. Impacts

a) Project Generated Traffic Noise

As a result of implementing the Project and any of the various development alternatives, additional traffic and noise in the area will be created. The noise level for each alternative were calculated for the major affected roadway segments using the traffic data provided, and the results are summarized in Table 16. It is important to note that the cumulative effect of development already approved in Downtown Palo Alto and the effect of growth in regional through traffic were included in the traffic

Table 16
PROJECT GENERATED TRAFFIC NOISE INCREASES
NOISE LEVEL RELATIVE TO 1984 BASE

ROADWAY SEGMENT	1984 BASE + THRU + PIPELINE	1995 PROJECT		1995 ALTERNATIVES			
		1A LOW RANGE	1B HIGH RANGE	2 17,500 SQ.FT./YR	3 70,000 SQ.FT./YR	4 REDUCED FAR(4)	5 NO PROJECT
E1 Camino Real, north of Alma	0.3	0.4	0.4	0.4	0.5	0.4	0.6
Alma Street, south of E1 Camino Real	0.5	0.6	0.9	0.7	0.9	0.9	1.3
Lytton Avenue, west of Middlefield	0.7	0.9	1.2	1.0	1.3	1.2	1.8
University Avenue, Alma to E1 Camino Real	0.7	0.9	1.1	1.0	1.2	1.1	1.6
University Avenue, west of Middlefield	0.6	0.7	0.9	0.8	1.0	0.9	1.3
E1 Camino Real, south of University	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Hamilton Avenue, west of Middlefield	1.1	1.4	1.9	1.7	2.1	1.9	2.8
Middlefield Road, south of Hamilton	0.4	0.6	0.8	0.7	0.9	0.8	1.2
Alma Street, south of Homer	0.5	0.7	0.9	0.8	1.0	0.9	1.4
University Avenue, east of High	0.7	1.0	1.3	1.1	1.4	1.3	1.8
University Avenue, east of Middlefield	0.2	0.9	1.3	1.1	1.4	1.3	2.0
Middlefield Road, south of Willow	0.5	0.5	0.7	0.6	0.8	0.7	1.0

Source: Earth Metrics Incorporated

Notes: a. Noise levels for Alternative 4 (Reduced F.A.R.) assumed to be same as for Project 1B-High Range.

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data on which all the noise projections were based. The incremental increases for each alternative are shown in reference to the "1984 base" condition.

The worst case increase over the base condition is 2.8 dBA, which is predicted to occur along Hamilton Avenue, west of Middlefield Road, for the No Project case. The next highest predicted increase will occur for the "Alternative 3" case and will also be along Hamilton Avenue west of Middlefield Road.

b) Post Implementation Noise Levels

The sound levels which will occur after implementation of each of the various project alternatives were calculated from the existing levels shown in Table 15, with adjustments applied in accordance with the incremental noise level increases or decreases indicated by the results contained in Table 16. The results of these calculations in terms of the L10 level, are summarized in Table 17. The numbers have been rounded to the nearest dBA. The applicable locations are the same as those used for Table 15.

Table 17
POST PROJECT TRAFFIC NOISE LEVELS (L10 dBA)

ROADWAY SEGMENT	BASE + THRU + PIPELINE	1995 PROJECT		1995 ALTERNATIVES			
		1A LOW RANGE	1B HIGH RANGE	2 17,500 SQ.FT./YR	3 70,000 SQ.FT./YR	4 REDUCED FAR(a)	5 NO PROJECT
El Camino Real, north of Palo Alto	71	71	71	71	72	71	72
Alma Street, east of El Camino Real	69	69	69	69	69	69	69
Lytton Avenue, west of Middlefield	66	66	66	66	66	66	67
University Avenue, Alma to El Camino Real	70	70	70	70	70	70	71
University Avenue, west of Middlefield	66	66	66	66	66	66	66
El Camino Real, south of University	70	70	70	70	70	70	70
Hamilton Avenue, west of Middlefield	66	66	66	67	67	67	68
Middlefield Road, south of Hamilton	65	66	66	66	66	66	66
Alma Street, south of Homer	68	68	68	68	68	68	68
University Avenue, east of High	66	66	66	66	66	66	67
University Avenue, east of Guinda	68	69	69	69	69	69	70
Middlefield Road, south of Willow	67	67	67	67	67	67	67

Source: Earth Metrics Incorporated

Notes: a. Noise levels for Alternative 4 (Reduced F.A.R.) assumed to be same as for Project 1B-High Range.

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Table 18 summarizes the post implementation (and No Project) noise levels and evaluations against the City of Palo Alto Noise Element standards.

At Addison Elementary School, the 65 dBA future L10 sound level contour corresponding to the criterion level, will extend to a distance of 32 feet from the curb of Middlefield Road.

At El Camino Park, the 65 dBA L10 sound level contour due to Alma Street traffic sources will extend to a distance of approximately 60 feet from the curb. Also at the park, the L10 sound level contour due to El Camino Real traffic sources will extend to a distance of approximately 110 feet from the curb.

At the current CC and CS zones along Alma Street, the future levels are predicted to be 68 dBA to 69 dBA. These levels will be in compliance with the standards applicable to commercial/office land use, but will be up to 3 dBA in excess of the limit applicable to residential land use.

The predicted future levels at commercial and office land uses will be within the 70 dBA limit which applies to these uses.

TABLE 18
EVALUATION OF POST PROJECT NOISE IMPACTS

RECEPTORS	NOISE LEVEL, L10 dBA	EVALUATION
Various residential land uses (along Lytton, Hamilton and University Avenue, south Middlefield Road and Alma Street)	66-70	up to 5 dBA over 65 dBA limit
Lytton Gardens, Middlefield Road side	67	2 dBA over 65 dBA limit
Lytton Gardens, University side	66	1 dBA over 65 dBA limit
High rise residential: Alma/Palo Alto	65	in compliance with the 65 dBA limit
Infill residential: Alma/University	69	4 dBA over the 65 dBA

Source: Earth Metrics Incorporated, 1985.

4. Mitigation

As indicated by the results shown in Table 18, noise excesses are predicted to occur at some receptors for cumulative traffic conditions after implementation of the Project and each of the various alternatives. An exceedance of the noise standard by one or two dBA may be considered a marginal impact. However, at some receptor locations, a combination of existing and Project - related noise is predicted to cause a truly significant noise exceedance under worst case conditions. Mitigation for new developments at these locations would therefore be needed and could also be considered for existing developments requesting building additions. However, additional measures for interior noise mitigation would not necessarily be needed in a particular case, depending on what measures

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are already incorporated in the plans or construction.

Following are lists of interior and exterior mitigation measures which may be used to lower interior and exterior noise levels in the study area.

a) Interior Noise Mitigation Measures

- closing or minimizing use of windows or other building openings (vents, etc.) on directly exposed side of structure;
- use of mechanical ventilation;
- use of double glazing or heavier glass in exposed windows;
- provision of air tight seals on all building skin penetrations, including windows and doors; and
- provision of noise attempting insulation in exterior walls and ceilings. (This is frequently used today in compliance with Title 24 insulation standards anyway).

Typical building construction with windows closed provides approximately a 20-25 dBA reduction in interior noise levels.

b) Exterior Noise Mitigation Measures

- Site layout and building orientation, i.e., use of nonsensitive areas as buffers for more sensitive areas;
- increased building setbacks;

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- noise barriers such as walls, berms, solid wood fences or structures; and
- solid decks and solid deck railings.

A six foot high noise barrier would normally give about 7 to 9 dBA reduction in exterior noise at first floor levels (at grade with the roadway). The use of a barrier might not be compatible with the siting and thus not feasible in some cases.

In summary, all of the predicted noise impacts of the Project are judged to be mitigatable by known sound insulation techniques. Application of the techniques described above is recommended for all new projects and remodelings in impacted portions of the Study Area.

REFERENCES

California, State of, Administrative Code, Title 25, Noise Insulation Standards, Chapter 1, Sub-Chapter 1, Article 4, 1974.

Palo Alto, City of, Comprehensive Plan 1980-1995, Chapter 7, Environmental Resources, p. 62.

U.S. Department of Housing and Urban Development, The Noise Guidebook, pp. 12-13.

U.S. Federal Highway Administration, FHWA, Traffic Noise Prediction Model, December, 1978.

F. LIGHT AND GLARE

1. Setting

Individual development projects, that would be processed after the Downtown Study. Project's (or Alternative) proposals are implemented, would be reviewed by the Architectural Review Board (ARB). Part of this ARB review would address potential light and glare spillover impacts on adjacent properties.

2. Impacts

Neither the Project nor the alternatives will directly generate significant adverse environmental effects from light and glare. Concern for light and glare impacts will occur when individual development projects are processed under regulations resulting from Downtown Study proposals.

3. Mitigations

The Architectural Review Board's (ARB) review should assure that effects of light and glare from such development projects are minimized where sensitivity to light and glare is most important, i.e., in locations near housing, hotels and other types of living accommodations. At present, there are no specific design guidelines which address light and glare impacts.

G. LAND USE AND DEVELOPMENT LEVEL

1. Setting

The Downtown Palo Alto Study Area is situated in the northwestern developed portion of Palo Alto, and extends from San Francisquito Creek on the north to Addison Avenue on the south, and from Alma Street on the west to Middlefield Road on the east. (See Map 1 for a precise description.)

The section of the Study Area designated as the Primary Study Area includes all commercially zoned parcels and the area designated as the Peripheral Study Area includes all residentially zoned parcels surrounding the commercial area.

a) Primary Study Area

There are two commercial zones in the Primary Study Area: (CC) Community and (CS) Service Commercial. In addition, there are (PC) Planned Community zoned parcels and a number of (PF) Public Facility zoned parcels.

(1) Zoning

The (CC) Community Commercial Zone follows an irregular boundary but generally extends from Lytton on the north to Forest on the south, and from Alma on the west to Webster on the east. The zone is

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intended to apply to central business district type uses including retail and related businesses (e.g., restaurants and personal services), as well as office and financial service uses. Currently, its principal site development regulations include a maximum 50 foot height limit and a 3.0 to 1 floor area ratio (FAR).

The (CS) Service Commercial Zone extends roughly from Forest on the north to Addison on the south and from Alma on the west to Emerson on the east. The zone is intended to allow uses that provide special services, e.g., auto repair, blue printing, and commercial cleaning. Its principal site development regulations include a maximum 50 foot height limit and a 2.0 to 1 FAR.

The (PF) Public Facility zoned sites in the Primary Study Area include the public parking lots, other public facilities, e.g., City Hall and the Downtown Library, Senior Center and several Pacific Telesis owned facilities. In addition, there is a (P) Pedestrian Shopping Combining District which is an overlay zone within much of the (CC) Community Commercial District. The purpose of this overlay zone is to assure that ground floor facades are designed in a pedestrian oriented manner.

(2) Comprehensive Plan Designations

The Comprehensive Plan Land Use Map designations for the Primary

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Area are Regional/Community Commercial, and Service Commercial, Major Institution/Special Facilities and Public Parks. The Comprehensive Plan's "Regional/Community Commercial" designation is intended to designate major trade areas where typical uses include apparel shops, department stores, furniture stores, restaurants and non-retail services such as office uses and banks. The Comprehensive Plan's Regional/Community Commercial designation in Downtown Palo Alto is generally contiguous with the (CC) Community Commercial zone.

The Comprehensive Plan's "Service Commercial" designation is intended to designate areas for commercial services that rely on customers making vehicular trips are located. The area of the Comprehensive Plan's Service Commercial designation in Downtown Palo Alto is generally contiguous with the (CS) Service Commercial zone.

The Plan's Major Institution/Special Facilities designation applies to PF zoned public facilities such as City Hall and the Downtown Library. The Plan's Public Park designation applies to the PF zoned Lytton Plaza and Cogswell Plaza.

(3) Principal Functions

The principal commercial functions of Downtown Palo Alto include those normally associated with both specialty retail districts and regional

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office and financial centers. Financial and professional services located in Downtown Palo Alto provide support services for local industry as well as for the region's population. In addition, Downtown Palo Alto contains personal service, businesses, e.g., beauty parlors, locksmiths and shoe repair shops, that serve both residents and Downtown employees. There are also business services, e.g., auto repair, blue printing and commercial cleaners which serve nearby businesses, employees and residents.

(4) Principal Uses

The principal uses that are located within the Primary Study Area are identified in the following table (Table 19) which shows amount of floor area in each use.

Most of the retail, eating and drinking, and service uses are located in ground floor locations within the Primary Study Area. Office and financial service uses are found in ground and upper floor locations in buildings designed principally as office buildings while offices usually occupy upper floor locations in multi-story buildings where retail businesses occupy ground floor space.

Table 19

Principal Uses - Primary Study Area
(including buildings under construction)

Use	Floor Area (in thousands of square feet)
Retail	528.0 s.f.
Eating and Drinking	143.0 s.f.
Services (Personal and Business)	267.0 s.f.
Offices	1,415.0 s.f.
Financial Services	115.0 s.f.
Commercial Recreation	40.0 s.f.
Auto Services	146.0 s.f.
Hotel	140.0 s.f.
Manufacturing	31.0 s.f.
Warehousing	74.0 s.f.
Public and Quasi-Public (Public facilities, Churches, Private Clubs)	137.0 s.f.
Residential	264.0 s.f.
Vacant	<u>100.0 s.f.</u>
TOTAL	3,400.0 s.f.

(5) Ground Floor Uses in the Community (CC) Commercial District Only

The following table (Table 20) illustrates the types of ground floor uses by amount of floor area within the (CC) Community Commercial District of the Primary Study Area.

Table 20

Ground Floor Uses - CC (Community Commercial) District

USE	Floor Area (in thousands of square feet)		
	DECEMBER '83	SEPTEMBER '84	CHANGE
Retail	420.0	412.0	(8.0)
Eating and Drinking	109.0	108.0	(1.0)
Services	175.0	176.0	1.0
Offices (inc. Financial)	361.0	367.0	6.0
Public/Quasi Public	68.0	68.0	-
Vacant			
Under Construction	88.0	63.0	(25.0)
Completed	33.0	53.0	20.0
Long Term Vacant	<u>17.0</u>	<u>29.0</u>	<u>12.0</u>
Total Vacant	138.0	145.0	
TOTAL	1,271.0	1,276.0	5.0

b) Peripheral Study Area

(1) Zoning and Comprehensive Plan Designation

The zoning in the Peripheral Study Area is principally residential. The highest density residential zones (RM-5 and RM-4) are generally located nearest the commercial Primary Study Area while the lowest density residential zones (R1 and R2) are located on the periphery of the Study Area. Recent zone changes have resulted in a new RM-D zone being applied to areas near the Primary Study Area where existing residential densities are relatively low. (The RM-D zone is a low density multiple family zone that permits no more than two housing units on a site.) Other zones include several (PC) Planned Community zoned parcels and several PF zoned parcels.

The Comprehensive Plan Land Use Map designations for the Peripheral Study Area are generally consistent with the zoning. The designations include Multiple Family Residential for the RM zoned sites and PC zoned residential sites, Single Family Residential for the R-1 and R-2 zoned sites, Major Institutional/Special Facilities for the Palo Alto Medical Foundations facilities (the Clinic facility is zoned PC), and Public Parks for the PF zoned park facilities.

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(2) Functions and Uses

Uses in the Peripheral Study Area are primarily residential. The land use patterns generally reflect the zoning and Comprehensive Plan designations. Highest density housing is generally located nearest the commercial districts while the lowest density housing is located on the periphery near San Francisquito Creek to the north and along Addison to the south:

In addition, the facilities of the Palo Alto Medical Foundation (located in a PC zone) are in the vicinity of the block bounded by Homer, Waverley, Channing and Bryant.

2. Impacts

a) Impacts of Project and Alternative Proposals which would change Land Use and Development Trends

The following paragraphs identify expected impacts of the project and alternatives in terms of changes in land use, amount of development and scale of development. [See Section III.C. of this EIR for a complete description of the Project proposals and Section IV. for a descriptions of the alternatives.]

(1) Annual Growth Limits

The Project's establishment of an annual 0-50,000 square feet maximum growth allocation for commercial development for a 7-year evaluation period [Section III.C.1] would result in maximum commercial development over the 7 year period ranging from 0 to 350,000 square feet of floor area exclusive of Project provisions for small site and minor expansions. [see Section III.C for descriptions of these Project exemptions to the annual growth limits.] The amount of commercial development which would likely occur through exemptions for these expansions over a 7 year period would be between 20,000 and 50,000 square feet of floor area. Thus, the maximum total commercial development that could occur under the Project's proposal within the Primary School Area over the 7 year evaluation period would be 400,000 square feet of floor area.

Establishment of Alternative No.2 as a growth limit would permit 17,500 square feet of floor area in new commercial development per year for a 10 year period. [see Section IV for description of Alternatives.] Such a growth limit would allow a maximum 175,000 square feet of floor area in commercial development over a 10 year period. The small site and minor expansion provisions would add between 20,000 and 50,000 square feet possible under Alternative No.2 over a 10 year period would be 225,000 square feet of floor area.

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Alternative No.3 would allow 70,000 square feet of commercial development annually for a 7 year period or a total of 490,000 square feet of commercial development over the 7 year monitoring period. Combined with the small site and minor expansion provisions (20,000 - 50,000 square feet), the maximum commercial development possible over the 7 year monitoring period for this alternative would be 540,000 square feet of floor area.

Alternative No.4 would reduce the maximum floor area ratios (FAR) for commercial development in the CC and CS zones to FAR equivalents allowing approximately 10 percent additional growth above the existing (+ pipeline) level of development. The alternative would include a "construction gate system" to limit and/or disperse construction impacts and to monitor growth. While full development (build out) under this alternative would be quite unlikely before 1995, for the purposes of environmental evaluation, the entire 370,000 square feet of build out is assumed by 1995. There would be no small site or minor expansion provisions under this alternative.

In comparison, the maximum additional commercial development that would be permitted under Alternative No.5 (No Project) (i.e., current zoning) would amount to 4,300,000 square feet of floor area. However, for purposes of comparison, it was assumed that only 1,100,000 square feet would be added by 1995 if current zoning were left in place (an extrapolation of the pace of development experienced from 1981 to 1984).

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Thus, while the Project proposal and Alternatives 2, 3 and 4 would permit more additional commercial development than currently exists (including pipeline projects) in the Primary Study Area, the amount of development would nonetheless be substantially less than the additional commercial development which would be permitted under current zoning regulations. Impacts of the potential additional growth under the Project, are discussed in Section VI.G.2b of this Chapter on "combined effects" and in appropriate sections on Impacts including Section VI.C on Air Quality and Section IV.J on Transportation, Circulation and Parking. Mitigations of these impacts are most extensively discussed in Section VI.J on Transportation, Circulation and Parking.

(2) Project Size and Commercial Floor Area Ratio

The combination of project proposals to establish commercial project size limits of 25,000 square feet gross or 15,000 square feet net over existing buildings [see Section III.C.4], to limit office uses in the CS zone to 5,000 square feet per site [see Section III.C.4] and to reduce floor area ratios for commercial development in the CC zone (to 2.0 to 1) and in the CS zone (to 1.0 to 1) [see Section III.C.5] will result in a reduction of the potential mass and bulk of commercial buildings in the CC and CS zones. Such a reduction would be relative to existing regulations and to recent commercial development (i.e., "Pipeline") in the Study Area. The following table (Table 21)

Table 21
Floor Area Ratio (F.A.R.) of Pipeline Projects^a

LOCATION	SITE AREA	PROJECT FLOOR AREA	F.A.R.	MAX F.A.R.	ZONE	PROJECT USES
417-21 Alma	4,219	12,034	2.85	3.0	CC	Office
423 Alma	23,906	36,510	1.53	1.53	PC	Multi-Family Residential and Retail
901-09 Alma	5,250	3,500	0.66	2.0	CS	Telecommunications
520 Cowper	25,500	67,570	2.65	3.0	CC	Hotel, Retail and Restaurant
913-21 Emerson	16,312	13,000	0.79	2.0	CS	Office
100 Hamilton	24,062	72,040	2.99	3.0	CC	Office
145 Hamilton	7,500	22,464	2.99	3.0	CC	Office
165 Hamilton	5,098	15,284	2.99	3.0	CC	Office and Retail
300 Hamilton	27,075	41,508	1.53	3.0	CC	Office and Bank
400 Hamilton	73,709	97,740	1.33	3.0	CC	Office and Bank
557 Hamilton	5,250	14,010	2.67	3.0	CC	Office
251 High	8,238	4,546	0.55	3.0	CC	Office
444 High	5,000	14,140	2.02	3.0	CC	Office and Retail
130 Lytton	11,625	34,539	2.97	3.0	CC	Office
248 Lytton	9,300	25,876	2.78	3.0	CC	Office and Bank
379 Lytton	17,650	30,000	1.69	3.0	CC	Office
435-39 Tasso	14,063	34,263	2.44	3.0	CC	Office
101 University	9,060	27,180	3.00	3.0	CC	Office
119 University	4,068	8,650	2.12	3.0	CC	Office and Restaurant
301 University	9,625	28,875	3.00	3.0	CC	Office and Bank
555 University	7,500	7,735	1.03	3.0	CC	Office

Notes

^a Pipeline projects are those approved prior to September 18, 1984 but not fully occupied by late Spring, 1984.

identifies all of these pipeline projects by total floor area (size, floor area ratio (bulk) and principal use. Generally, most pipeline projects exceed the proposed limits.

Alternative proposals to reduce the maximum FAR in CC to 1.75 to 1 [Alternative No.3] and to reduce the maximum FAR in CS to 0.5 or 0.4 to 1 [Alternative No.2, No.3 and No.4] would have the effect of further reducing potential commercial development, particularly in CS where a 0.5 to 1 commercial FAR would severely limit commercial redevelopment potential on sites that currently have some development.

(3) Housing Incentives

The proposal to consider housing incentives for Downtown CC, CS and possible CN areas (described conceptually in the Project and with specific incentives in Alternatives 2 and 3) could add more housing to the estimated 300 housing units currently in the Primary Study Area.

In addition to housing incentives, the exemption in the Project and in Alternatives 2 and 3 from annual growth limits and project size limits on housing developments could make housing in the commercially zoned Primary Study Area more attractive to developers in the future.

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Thus, the combination of: 1) exemption from annual growth and project size limits; and 2) inclusion of housing incentives could add as many as 500 housing units to the Primary Study Area by 1995. Such housing could modify the commercial character of the Primary Study Area. It is expected that 300 of these 500 added units would be located in the two areas where substantial zoning changes are proposed under the Study's Land Use strategies, i.e. the existing CC area north of Lytton and the CS area south of Hamilton. It is in these areas where existing level of development is less intensive, therefore, land costs presumably would be lower for acquisition and development into housing.

While added housing in these areas could be expected to add more traffic to the Primary Study Area than the amount generated by the existing (and pipeline) level of development, the traffic generated by housing would be less than comparable amounts (in terms of floor area) of commercial development would generate. [Section VI.J for a complete description of traffic impacts.]

Added housing is not expected to create parking impacts because it is assumed that all added housing will provide required on-site parking.

(4) Parking Requirements

The establishment of regulations requiring new commercial development

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in the Assessment District to provide 100 percent of its parking need [see Section III.C.8a] and the establishment of a uniform parking requirement of one space per 250 square feet of floor area (see Section III.C.8b) could restrict the amount of future commercial development in two areas.

First, the combined effect of the proposals to restrict the size of development projects [Section III.C.4] and to require new commercial development to provide on-site parking [Sections III.C.8a and b] could result in limiting the development potential of small sites to a greater extent than what the proposed regulations would otherwise allow. On-site parking, if placed underground, requires fairly large lots because of the relatively fixed amount of space required for ramps. Thus, the smaller the lot size, the proportionally less space that can be devoted to parking. The threshold lot size in providing the full requirement of on-site parking appears to be around 10,000 square feet. However, it is quite likely that much of the new development will occur on fairly small lots because of the maximum project size limits ranging between 15,000 and 25,000 square feet of floor area. As a result, there may be situations where developers who are unable to obtain off-site parking may be restricted from building up to the maximum FAR or project size limits because the lot size where the development is proposed precludes provision of required on-site parking, (at least within two subterranean levels. (Note: The off-site parking provisions under the Project and Alternatives 2, 3

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and 4, if implemented, could address the problem of small site development providing required parking.)

Second, current rents may not be sufficiently high in Downtown Palo Alto to sustain new development providing on-site parking. A more detailed discussion of this potential impact is in Section VI.K on on Economic and Fiscal Impacts.

The potential effect of the parking proposals in limiting future commercial development beyond the limits of the growth proposals will not create any additional significant adverse environmental impacts.

(5) At and Above Grade Parking as Floor Area

The establishment of a regulation that parking at or above grade locations would be counted as floor area for aesthetic reasons [See Section III.C.8e] would most likely have the effect of discouraging future commercial development from providing parking at/or above grade because the potential financial return of floor area counted within the FAR computation would be greater from commercial uses rather than from on-site parking.

The likely results of this proposal will be positive in terms of the aesthetics of future commercial projects. The effects of additional

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below grade construction are discussed in Section VI.F on Drainage and Section VI.B on soils.

(6) Retail Vitality

The establishment of a ground floor retail-only provision for the University Avenue corridor [see Section III.C.10a and Map 3 for a detailed description] would most likely assure continuation of retail and retail related uses within the University Avenue Corridor and encourage the long run trend of retail sales. Expansion of retail, personal services and eating/drinking uses in the area is also possible but such expansion is difficult to predict with any degree of certainty. Therefore, it is not possible to quantify increased traffic and parking demand that might result from such potential expansion and to determine whether an adverse environmental effect would be produced. [See Section VI.J on Transportation]. The economic effectiveness of this proposal is discussed in Section VI.K on Economic and Fiscal impacts.

(7) Neighborhood Protection

The establishment of additional site development restrictions for commercially zoned sites in the Primary Study Area within 150 feet of abutting residentially zoned (R-1 to RM-4) areas [see Section III.C.11] would provide additional protection to adjacent residential

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neighborhoods by assuring compatible transition between new commercial development and these residential neighborhoods in terms of height, street setbacks and overall scale. These proposed restrictions are all positive in their environmental effects.

(8) Land Use and Zoning Changes - Project Proposals

The following paragraphs describe impacts of EIR project proposals on land use and zoning changes for specific areas within the Primary Study Area.

(a) CC Zone North of Lytton

The project proposals for the existing CC zoned area north of Lytton to rezone a limited number of sites to residential and substantially limit the amount of commercial development potential on the remaining sites would reduce both commercial redevelopment and intensification potential as well as potential traffic increases. (See Section III.C.14b for the project description and Map 4 for proposed land use map amendment and Map 16 for proposed zone changes). Grandfather clauses are proposed for those neighborhood-serving commercial uses on the east side of High between Lytton and Hawthorne (e.g., the dry cleaners and laundromat) that would otherwise become non-conforming if a new housing zone is applied.

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The land use impact of the proposal for the area on the east side of High (rezoning to a multiple family district) would likely result in some housing displacing commercial where non-neighborhood serving commercial uses would become non-conforming and subject to termination. However, these land use changes may not occur until after the non-conforming uses are terminated under the Zoning Ordinance's termination provisions (a minimum 15 year period).

Land use patterns on the block between High and Alma (proposed for a new Neighborhood Commercial zone) would remain commercial in the near future. Those existing uses that are not neighborhood serving would become non-conforming and subject to termination within a minimum of a 15-year period. Since the project calls for a maximum 1.0 to 1 floor area ratio (FAR), some redevelopment to either commercial use or housing could occur on sites where the existing FARs are substantially lower and where provision of on-site parking would be feasible. It could also occur on sites where non-conforming commercial uses would be terminated by the Zoning Ordinance termination provisions.

These strategies, while allowing more development than presently exists on these sites, are nonetheless directed toward minimizing extensive new commercial development, assuring greater compatibility with nearby residential development, and reducing

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potential traffic increases generated by such developments. The net effect of these changes will be beneficial from the perspective of land use considerations

(b) CS Zone South of Hamilton

[See Section III.C.14c for the project description and Map 5 for proposed land use map amendments and Map 8 for proposed zoning changes.]

(i) Portion of the CS area South of Hamilton

Under the Project proposal, redevelopment into higher intensity uses only would be possible on sites where existing intensity of commercial development was low (i.e., under a 1.0 to FAR) and where the sites were of sufficient size to provide on-site parking for new commercial development with a 1.0 to 1 FAR.

Uses in the so-called CS core (the four blocks bounded by Alma, Forest, Emerson and Channing) would remain commercial. Commercial redevelopment from manufacturing and auto service uses into office and other commercial uses appears quite possible over the next 10 years. Existing development on many sites, e.g. the Peninsula Creamery site, has low FARs

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and since many sites are relatively large, redevelopment with on-site parking is feasible. Major limitations to such redevelopment would be the annual growth, project size and office use size limits for commercial projects. However, uses in many existing buildings are nonetheless likely to change over time in response to market pressures, regardless of whether maximum FARs are reduced for commercial development. Redevelopment into housing could occur on some sites depending on the extent of the housing incentive. Staff estimates that 225 housing units would develop in the CS area by 1995.

Thus, the proposal for the transition area east of Emerson and south of Channing would assure better compatibility of future development with adjacent residential than existing uses provide; and while the proposal for the so-called CS core area would allow some existing commercial redevelopment, it would be at a lower level of intensity in terms of maximum FAR than what existing regulations would permit.

(ii) Transition Area to Residential Zone

The so-called transition area east of Emerson and south of Channing would not experience much redevelopment into other

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commercial uses because many sites would be rezoned to residential use. These rezoned sites would likely remain in commercial use until near their non-conforming use termination date (15 years) because the low residential densities applied to these sites would encourage early redevelopment into housing.

The Downtown Study Committee did not identify specific sites to be rezoned to residential use, and therefore, no specific proposal is being made at this time. The Committee considered this issue on August 13, 1985 and concluded that none of the area should be rezoned for housing except for the sites south of Addison along Alma. The Committee's preferred land use for this transition area is contained in Maps 10, 12 and 14, and is analyzed as Alternatives 2 and 3 in this EIR. The Committee recommended alternatives leave most CS zoned sites in a CS zone with a 0.5 floor area ratio.

(c) Zoning Restrictions In The CC Zone

Properties which remain in the CC zone under the project will have their development potential directly reduced by the change in floor area ratio (FAR) from 3.0 to 1.0 under current zoning to 2.0 to 1.0 under the proposal. The requirement to provide 100 percent of needed parking will further limit potential develop-

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ment to some extent. [See earlier discussion in Sections VI.G.2.a.(2) and (4).] None of these changes will result in environmentally significant effects on land use.

A major proposal within the CC zone is the establishment of ground floor use controls. See Map 3 for area and Section VI.G.2.a (6) for a description of impacts.

(9) Land Use and Zoning Changes - Alternative Proposals

The following paragraphs describe impacts of Alternative proposals on land use and zoning changes for specific areas within the Primary Study Area.

(a) Area: CC Zone North of Lytton

(See Maps 9, 11 and 13.)

The Downtown Study Committee recommends Alternative 2 as the preferred zoning for this area. [See Section IV.A.6 for the project description and Map 11.] Alternative 2 would create a multiple family residential zone for the existing residential use at 215-239 High which will remain conforming and complying with regard to site development regulations. The remaining CC properties to the north of Lytton would be rezoned to a new

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neighborhood commercial zone with a 0.5 to 1 FAR for commercial development and with modified site development regulations. The residential FARs (i.e., housing incentives) in this commercial zone would be 0.5 to 1 for the remaining commercial sites on the east side of High, 0.75 to 1 for the west side of High and 1.0 to 1 for sites on Alma. The combined commercial and residential FARs would range between 1.0 to 1 and 1.5 to 1. The site development regulations in this new zone would attempt to minimize structural non-compliance of existing buildings. The regulations would include a 35 foot height limit where the residential FAR is less than 1.0 to 1.

Some redevelopment into housing is more likely to result from the Committee-recommended proposal, especially where the combined commercial and housing FAR is at least 1.0 to 1 (sites between High and Alma) and where densities under the new developable floor area (DFA) formula would be higher than those under existing zoning (also sites between High and Alma). Redevelopment into commercial use is expected to be slight because the low 0.5 to 1 commercial FAR provides little incentive for new commercial development.

Under Alternative 3, [see Section IV.B for the project description and Map 13.] these sites north of Lytton and between Alma and High would be rezoned to CS with a 1.0 to 1 FAR. Very few

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changes in land use would be expected except for those sites where existing intensity of development is low and where sites are large enough to provide on-site parking. In these latter situations, some new commercial development with a 1.0 to 1 FAR could be expected. There would be less incentive to develop new housing under this alternatives than there would be under the Study Committee alternative.

Neither Alternative 2 nor 3 would have a significant adverse impact on the area. Alternative 4 has not been sufficiently defined to allow detailed comment at a small area level. However, if this area were left in CC zoning and an over-all decrease in FAR from 3.0 to 1 to 0.75 to 1 were applied (see Section IV.C), then commercial redevelopment under Alternative 4 would be greater than under Alternative 2 but less than under Alternative 3. The alternative with the greatest potential for change in use and intensity is the No Project Alternative, which under current zoning regulations would permit substantial commercial redevelopment and intensification in this area.

(b) CS Zone South Hamilton

(See Maps 10, 12 and 14.)

As with the CC area north of Lytton, the Committee has recom-

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mended relatively precise alternatives for the CS area south of Hamilton. The Committee favors either Alternative 2 or 3 for this area (see Maps 12 and 14). Aside from the two relatively small areas, 1011 to 1027 Alma which is proposed for RM-2 zoning zone, and 913 to 949 Emerson which is proposed for a new neighborhood commercial zone, the Committee recommendation is to rezone the remainder of this area to a new CS zone which (1) allows CS-type uses; (2) has either a 0.5 to 1 commercial FAR (Alternative 2) or a commercial FAR varying between 0.25 to 1 and 0.75 to 1. (Alternative 3) and (4) applies a new housing density formula based on developable floor area (DFA) rather than on site area.

The results of these changes are expected to be longer retention of existing commercial structures but with shifts in commercial use and more housing than what otherwise would have been expected if present trends, i.e., the No Project Alternative, had continued. Housing densities under the DFA density formula (developable floor area divided by 1,000 square feet equals maximum number of units) would also be higher, particularly along the Alma corridor, than the densities the current CS zoning would permit.

It should be noted that Alternatives 2 and 3 also contain a child care incentive for the new CS and CN zones south of Hamilton. An

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additional 0.25 to 1 FAR would be available to developers willing to provide space for child care facilities under terms to be set by the City under a new ordinance. Whether such an incentive would be exercised by developers of either commercial and mixed commercial and residential projects would be difficult to predict since the incentive does not specifically exempt the potential added commercial floor area from the annual growth limits, maximum project size and the 5,000 square feet of limit on office use in C.S. Therefore, small amounts of additional floor area may not be a sufficient incentive to developers to assure provision of on-site child care facilities in commercial or mixed use project.

Alternative 4 has no annual limit on development. It would have a FAR in the CS area of 0.4. The major difference from Alternatives 2 and 3 is that there would be no annual limit, so that the rate of growth in any one year could be greater.

(10) Land Use and Zoning Changes--No Project Alternative

The likely outcome of the No Project alternative would be continued and possibly expanded rates of redevelopment in the two areas earmarked for land use changes in the Primary Study Area, i.e., the CC north of Lytton and CS south of Hamilton. Thus, displacement of existing personal, business and auto service uses

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resulting from new office construction could be expected to continue at present rates, assuming demand for office space in or on the periphery of Downtown Palo Alto remains at a high level.

Whether retail activity would remain stable, expand or contract along the University Avenue retail corridor without a ground floor retail provision (i.e., the No Project Alternative) is discussed in Section VI-K, "Economic and Fiscal."

The absence of a new housing incentive strategy under a No Project alternative would most likely result in less new housing in the Primary Study Area than the 500 new units projected by 1995 under the Project and the other alternatives.

b) Combined Effects of Proposed Project and Alternative Land Use Changes

With the principal exception of the No Project alternative, the land use and zoning changes discussed in this section have been either neutral or beneficial in their land use implications. The following pages will evaluate the combined effects of the land use proposals in both a long term and a ten year perspective.

(1) Build-Out of the Project and Alternatives

There are major differences between the project and some alternatives in the total amount of development possible based on floor area ratio. Table 22 lists the potential build-out of the Project and each alternative. For ease of comparison, the information is grouped by three areas as defined in Maps 6, 7 and 8.

The project and Alternatives 2 and 3 are similar in commercial build-out potential, with Alternative 3 lower because it has a 1.75 FAR in the CC zone whereas the Project (High and Low Ranges) and Alternative 2 all have a 2.0 FAR in the CC zone. The housing build-out figures assume that each site is fully used commercially and that housing is then added. To see another assumption on housing build-out, refer to Section VI.I of this report.

Alternative 4 has the lowest commercial build-out potential of all, and the No Project Alternative produces the largest growth potential. With the exception of Alternative 4, none of the alternatives' or the project build out levels would be environmentally acceptable if they actually occurred. The traffic, parking, and air quality impacts of full build-out (except for Alternative 4) would be far worse than any of the ten year levels analyzed in this report. For the project and Alternatives 2 and 3, the full build-out comparisons may have little meaning, however, since each of these proposals cover only a 7 to 10

Table 22

Comparison of Build Out Potential: Project and Alternatives⁽¹⁾
 (Square Feet -Thousands- and Dwelling Units)

	1A Low Project	1B High Project	2 17,500 sq.ft./per	3 70,000 sq.ft./yr	4 Reduced FAR (3)	5 No Project	1984 Base Case With Pipeline
1. North of Lytton							
A. commercial sq. ft.	89	93		148	120	420	70
B. dwelling units(2)	0	94		0	0	0	-
2. Central Core							
A. commercial sq. ft.	4,225	4,225		3,939	2,898	5,893	2,648
B. dwelling units	138	138		66	0	0	-
3. South of Hamilton							
A. commercial sq. ft.	614	502		501	472	1,358	398
B. dwelling units	78	642		639	0	0	-
4. Total							
A. commercial sq. ft.	4,928	4,820		4,588	3,490	7,671	3,116
B. dwelling units	216	874		705	0	0	-

Notes:

1. Excludes PF and PC parcels and several churches in CC zone.
2. Housing figures assumed maximum commercial development and are in addition to existing and pipeline housing units.
3. Alternative 4 based on 0.75 to 1 FAR for CC parcels and 0.4 to 1 FAR for CS parcels.

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year period with a need to reassess growth policy at the conclusion of that period. The Project and these alternatives do not contemplate actually allowing build-out to occur. They set fairly high floor area ratios (2.0 or 1.75 to 1) in the CC zone to allow individual sites to be developed at a scale consistent with present buildings but rely on the annual allocation process to control the amount of development. Even though build-out may not be a fair measure for these alternatives, there is the question of what options will be considered at the conclusion of the period of growth control (7 or 10 years). To guard against the effects of over-development, each of these alternatives proposes annual monitoring and reporting of growth trends.

The build-out figures have been derived by comparing existing development on each parcel to the development allowed under the Project and alternative FARs, project size limitations, etc. At the present time, there is no minimum lot size in the CC or CS zones, and parcels could be subdivided to create smaller sites (although this may work against parking potential). As with all build-out estimates, they are theoretical and presented as a basis for comparison only. There is no indication of how long it might take to produce full build-out, and there is no reason to believe that it could actually occur.

(2) Annual Growth Limitations

The proposed project and Alternatives 2 and 3 each have annual growth

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limitations ranging from 0 square feet per year (Project 1A) to 70,000 square feet per year Alternative 3. The annual growth limitation was conceived as a mitigation for the build-out potentials just discussed. With a growth allocation, the City is assured that the development potential of the zoning can not be utilized at a rapid pace. While the growth control allocation is in force, less development will occur than under present trends.

From a purely environmental point of view, the proposals with the least annual growth have the least impact. From an economic perspective, the lowest annual allocations have negative effects on the areas ability to change in response to economic forces or to respond to individual needs of business owners. The Downtown Study Committee proposed 70,000 square feet per year (Alternative 3) as a compromise between these environmental and economic forces. The City Council set the project levels (0 to 50,000 square feet per year) lower, indicating that the balance should be more toward environmental protection and the status quo. The potentially adverse environmental effects of the growth levels are not on land use per se, but on traffic, parking, air quality, and noise. (See individual sections for details.)

In addition to different levels of annual growth, these alternatives propose a means to decide what projects shall be allowed to be built in a given year. None of the project selection systems will have significant adverse environmental benefits.

(a) Rating System (High Range of the Project)

The project includes a system for selecting projects based on community benefit. Because of the relatively small number of projects possible each year under the proposed annual growth limitations, the Committee proposed that a rating system should be made simple and address only the most important of Downtown concerns. The Committee suggested that the only factors of community benefit to be used be the protection of historic properties (highest priority) and remodeling of existing buildings. The Committee did not specify how these priorities would be used. The rating system would work as follows:

(i) Applications would only be accepted during 2 periods of the year, and applications would be eligible for consideration only if they are technically complete.

(ii) For each six month batch of applications, projects would be placed in one of four priority groups:

- Those which involve an historic building and which preserve the historic integrity of such properties (there would be a referral to the Historic Resources Board to make this determination);

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- Projects which involve the remodeling or rehabilitation of existing structures and which retain at least 80 percent of the original building;
- Projects which do not involve remodeling or the preservation of historic buildings; and
- Projects which would cause the loss or destruction of, the integrity of an historic building.

Up to the annual limit, projects would be accepted according to the priority of each group. If the square footage of applications exceeds the annual allocation, then the projects in the lowest priority group which will be reached are chosen at random. If the annual allocation is all consumed during the first of the 2 application periods, then projects for the second period are carried forward to the next year.

(b) First Come, First Serve

Alternative 2 selects projects on a first come, first serve basis.

There would be no environmental consequence of such a system, however, there would be very great administrative problems.

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With a small level of growth, it can be anticipated that applicants will line up overnight to be the first to apply and that all of the allocation will be spoken for on the first day.

Arguments are expected as to whether applications are complete and acceptable.

(c) Lottery

Alternative 3 solves the problems of Alternative 2 by simply having a drawing to decide which projects can proceed.

All of the annual limit systems have a common problem which is the question of what happens if a project runs into trouble during design review or other approvals. Selection can not imply eventual approval, and rules to handle changes to the selected group over time will be needed.

(3) Conclusions on combined effects of land use changes

Which of the alternatives or the Project is most environmentally beneficial depends upon the time frame in which the issue is considered. From a very long term perspective, the build-out development potential of Alternative 4 appears most favorable, since all other proposals would generate much greater potential development.

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Alternative 4 is the only proposal for which the build out projection is assumed to occur by 1995. Alternative 4 has a disadvantage in the fact that many buildings would become non-complying and under certain situations could not be replaced if lost through fire or disaster.

Taking a shorter term perspective is appropriate since the project and Alternatives 2 and 3 are explicitly set with 7 to 10 years horizons. Among these choices, those with least growth have the least adverse impacts (again, see Sections on Traffic, Air Quality and Noise. The system for selecting which projects are built may provide some environmental benefit, and the rating system approach is preferred. None of these proposals will have adverse impacts on land use compatibility or policy.

Of the proposals under study, only the No Project Alternative appeared to have adverse effects on land use patterns. The current zoning (which is the No Project Alternative) allows massive commercial uses in close proximity to residential neighborhoods, and allows so much development that it could completely change the scale and function of areas north of Lytton and South of Hamilton.

3. Mitigations

The levels of growth resulting from the Project and alternative proposals will produce adverse impacts on traffic, air quality and noise. These impacts and

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possible mitigations are discussed in detail in other parts of this chapter. In addition, some of the Project and alternative land use proposals discussed in this section may have adverse environmental effects. For example, the ground floor retail only provision, if successful in expanding retail uses, might increase traffic and parking demand as compared to other uses. Again, detailed discussions of such impacts and possible mitigations are contained in other sections of this chapter.

From the point of view of land use impacts, this section has shown that the only alternative which would be adverse in its land use consequences is the No Project choice. Therefore, mitigations are not required for the Project or the other alternatives.

H. ENERGY CONSUMPTION

1. Setting

The City of Palo Alto owns and operates its utilities, and provides service to the Downtown Study Area. The City purchases its electricity from the Western Area Power Administration (WAPA) of the Department of Energy and a small amount from Pacific Gas and Electric (PG&E) through the Northern California Power Agency (CNCPA). Its contract with WAPA extends until 2004. Approximately 50 percent of the purchased power is generated from hydroelectric sources. Citywide electricity consumption in 1980 amounted to 834 million kilowatt hours (Kwh). By 1990, Citywide electricity consumption is expected to exceed 1 billion kilowatt hours. Natural gas is purchased by the City from PG&E. In 1980, gas consumption amounted to approximately 33 million therms. Consumption patterns vary with overall demand, price fluctuations and imposition of energy conservation measures.

The Comprehensive Plan addresses issues of energy conservation with policies advocating (1) inclusion of federal and state energy conservation policies in City codes where possible, (2) providing information on the advantages of solar systems, and (3) encouragement of energy conservation designs in new construction. The Comprehensive Plan also mentions that federal and state energy conservation standards affect energy consumption in California, especially Title 24 of the California Administrative Code, which regulates the design and construction of new buildings regarding energy efficiency.

2. Impacts

The following table shows electric and natural gases forecasts of peak demand and annual consumption expected from the Project's annual growth (0 and 50,000 square feet per year) and from the alternative growth proposals. The forecasts were prepared by the Resources Planning Division of the City's Utilities Department.

Table 23
Study Area Energy Consumption Forecasts

SCENARIOS	ELECTRICITY		NATURAL GAS	
	Peak Demand	Annual Electricity Consumption	Peak Demand	Annual Consumption
Project 1A Low Range (0 Annual Growth)	200,000 watts	220,000 Kwh	500 cu. ft./hr.	2,000 therms
Project 1B High Range (50,000 s.f. Annual Growth)	3,200,000 watts	4,070,000 Kwh	9,250 cu. ft./hr.	37,000 therms
Alternative 2 (17,500 s.f. Annual Growth)	1,700,000 watts	2,145,000 Kwh	4,875 cu. ft./hr.	20,000 therms
Alternative 3 (70,000 s.f. Annual Growth)	4,400,000 watts	5,610,000 Kwh	12,750 cu. ft./hr.	51,000 therms
Alternative 4 (Reduced FAR)	3,200,000 watts	4,070,000 Kwh	9,250 cu. ft./hr.	37,000 therms
Alternative 5 (110,000 s.f. Annual Growth - No Project)	9,400,000 watts	12,100,000 Kwh	27,500 cu. ft./hr.	110,000 therms

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Annual projected electricity consumption of the project and alternative growth proposals (i.e., the net increase in study area energy consumption) ranges from 220,000 Kwh under the Project's Ø growth proposal (includes 20,000 square feet for small site commercial expansion and 750 additional housing units) to 12,100,000 Kwh under Alternative 5 (i.e., the No Project Alternative).

While the range in natural gas consumption projected for the growth strategies is of comparable magnitude to the range in electricity consumption forecast, it should be acknowledged that the highest increase expected under Alternative 5 constitutes less than 0.3 percent of current Citywide annual consumption. Furthermore, continued use of existing energy conservation measures should modify potential future demand created by either the Project's growth or growth expected under Alternatives 2, 3, 4 or 5 (the No Project Alternative) provided the effects of these measures are not offset by additional price reductions.

3. Mitigation

All development proposals submitted under the Project's or alternative growth limits would be subject to energy conservation standards of Title 24 of the California Administrative Code which are enforced by the Building Inspection Division as part of the existing building permit process. In addition, City staff will continue to review all new projects pursuant to City ordinances that encourage, where it is practical, use of solar and vapor heating systems and shading of south and west facing windows in new or remodeled development projects.

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Incorporation of additional energy conservation measures into design and operation of new development is recommended. Examples include use of natural ventilation and modifications of operation schedules away from periods of peak energy usage.

No additional mitigation measures are needed at this time. Additional gas supplies can be purchased from PG&E. Additional capacity to the electric utility system serving Downtown can be added, if needed, with the costs amortized by the user.

I. POPULATION AND HOUSING

1. Setting

The Bureau of the Census reported that in 1980 the Downtown Study Area (including both the Primary and the Secondary Study Areas) had a population of 5,314 persons and a total of 2,962 housing units. Of these 2,962 housing units, 18.6 percent were single family (detached), 2.7 percent were single family (attached), 6.7 percent were in two family or duplex structures, 17.1 percent were in three or four unit structures and 54.9 percent were in structures containing five or more units.

The vast majority of these units, i.e., 76.3 percent of the total 2,962 units, were renter occupied. Renters in the single family detached units accounted for a smaller proportion, i.e., 53.9 percent of these units were renter occupied. Most of the households in structures with 5 or more units (i.e., 79.3 percent) were renter occupied.

Between 1980 and January 1, 1985, 213 additional units were either completed or under construction while 11 other units were approved but had not begun construction.

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2. Impacts of the Project and Alternatives

The following table illustrates the need (i.e., housing impacts) generated by the Project and alternative commercial development growth strategies for both low and moderate income housing units as well as total housing units.

Table
Housing Demand of Growth Strategies

	ANNUAL GROWTH SQ. FT.	YEARS	TOTAL(1) GROWTH SQ. FT.	HOUSING DEMAND	
				LOW/MOD UNITS(2)	TOTAL UNITS(3)
1A Project, low range	0	7	20,000	10	32
1B Project, high range	50,000	7	370,000	182	587
Alternative 2	17,000	10	195,000	96	310
Alternative 3	70,000	7	510,000	251	810
Alternative 4	N/A	10	370,000	182	587
Alternative 5	1,110,000	10	1,100,000	541	1,746

(1) Includes 20,000 s.f. for small site exemptions. If 50,000 square feet of exemption are allowed then alternatives 1A, 1B, 2, and 3 would each result in an additional need for 15 low/moderate income units and 48 total units.

(2) Formula derived from Housing Mitigation Ordinance:

$$\frac{\text{Total Development Assessed}}{350 \text{ s.f.}} \times \frac{.31 \text{ Demand for Low Mod Income Units}}{1.80 \text{ Workers per Household}}$$

Note: 350 s.f. is the average square footage generated by commercial and industrial development.

(3) Formula derived from Housing Mitigation Ordinance:

$$\frac{\text{Total Development Assessed}}{350 \text{ s.f.}} \times \frac{1}{1.8 \text{ Workers per Household}}$$

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The previous table in effect, shows a "worse" case scenario for the housing demand created by each of the growth alternatives. The housing demand computation assumes that every worker added is a net new worker and requires housing.

The table illustrates that the housing demand generated by the Project (high range) and the alternative growth scenarios is quite substantial. Even the low growth range of the project (which includes only 20,000 square feet for small site expansion provision) would generate a housing need of 10 low/moderate income housing units and 32 total housing units. At the upper limit, the "no project" (present trends) alternative generates a total housing demand within a 10 year period of over 1,746 housing units.

The Project and Alternatives 2 and 3 all have annual growth limits and restrictions on the size of commercial projects which may be built. Housing is not restricted by these controls. Provided that there is a market for housing in the Downtown area, the fact that housing does not fall under the growth and project size limitations should serve to provide a major incentive to residential building. Developers who are not successful in gaining a priority in a given year's growth allocation will have the option to build housing in the place of commercial projects. Also, developers who have large sites and are limited by the maximum project size of 25,000 square feet can fill out their projects with dwelling units.

In addition to the inherent incentive to build housing because it would not be

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limited to the restrictions proposed for commercial developments, Alternatives 2 and 3 provide even greater incentives for the areas where neighborhood commercial and service commercial zoning are proposed. These incentives relate to housing density.

Both Alternative 2 and 3 would compute the housing density based on a developable floor area (DFA) concept. Under the present CS and CN zones, density is based on the site area. For the CS zone the formula is 900 square feet of site area for each dwelling unit. The DFA concept would base residential density on permitted floor area rather than upon site area. The proposed formula would permit one housing unit for every 1,000 square feet of allowable floor area. As one example of this concept, where the maximum floor area ratio (FAR) for a 10,000 square foot site is 1.5 to 1, the total allowable floor area would be 15,000 square feet and the maximum number of permitted housing units would be 15 units. Where the floor area ratio is greater than 1.0 to 1, the DFA concept provides a substantial gain in units. For small sites or zones where the permitted floor area ratio (FAR) is less than 1.0, the DFA approach reduces potential density. In mixed commercial and residential projects, the amount of floor area used commercially would be deducted before the housing density would be computed.

The DFA concept would be coupled with a graduated floor area ratio in the new CN and CS zones north of Lytton and South of Hamilton. [See description of land use alternatives in Section IV.A.4 and additional discussion of specific land use alternatives in Section VI.G.2.a(9)] The details of the new floor area

ratios vary between Alternatives 2 and 3. In Alternative 2, the base commercial floor area ratio for both CN and CS zones would be 0.5. This commercial floor area could be used for either commercial or housing development. Beyond the base commercial FAR, there would be additional FAR available exclusively for housing use. This added housing floor area (i.e., incentive) would be available in a graduated pattern with a 0.5 FAR available for sites near residential zones. This housing FAR incentive would be scaled up to a 1.5 FAR for sites along Alma near the CC zone. Alternative 3 allows the same housing FAR in the same locations as Alternative 2, but varies the commercial base FAR so that it is always one half of the housing FAR. Alternative 2 has the effect of further shifting total development potential away from residential zones and toward Alma Street and the CC zone.

The following table (Table 25) lists the build-out potentials of the Project, and Alternatives 2 and 3. The figures are theoretical, and presented for comparison only. It is extremely unlikely that full residential build-out would occur.

Table 25
POTENTIAL HOUSING UNITS AT BUILD-OUT

If all sites are built to commercial potential plus housing	PROJECT 1A & 1B	ALTER. 2	ALTER. 3	ALTER. 4	ALTER. 5
a. CC zone	138	138	66	NA	NA
b. CS zone	78	642	639	NA	NA
c. CN zone	0	94	0	NA	NA
Total	216	874	705	NA	NA
If all sites are built exclusively for housing					
a. CC zone	1073	1073	938	228	1384
b. CS zone	262	765	759	265	646
c. CN zone	38	116	71	68	121
Total	1373	1954	1768	561	2151

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The above figures show the specific housing incentives would result in Alternatives 2 and 3 yielding a higher housing build-out than the housing build-out that could occur under the Project's less specific housing proposal. Therefore, these two alternatives would be preferred in addressing housing demand created from new development.

However, in terms of what is likely to be built rather than what is theoretically possible, staff estimates that the likely amount of housing produced in the Primary Study Area by 1995 under the Project and Alternatives 2 and 3 will be 500 units. Whether there is a market demand to use the added incentives of Alternatives 2 and 3 is unknown. Alternative 4 and the No Project Alternative would have none of the incentives included in the project and Alternatives 2 and 3. [In projecting traffic and air quality, all alternatives were assumed to produce 500 housing units. To the extent to which Alternatives 4 and 5 fall short of providing housing incentives, the use of 500 housing units for these alternatives produces a "worst case" picture of their traffic related impacts.]

If the 500 unit forecast is realized, these new units would more than offset the 32 housing unit demand generated under the Project's Ø annual growth limit. The 500 units would also offset the housing demand of the lowest growth alternative (i.e., Alternative 2 at 17,500 s.f. of commercial development for 10 years) which generates a housing need of 310 units. The jobs/housing imbalance then progressively increases with each of the higher growth alternatives for commercial development.

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Of the various options, only Alternative 5 (No Project) appears to warrant mitigation based on the overall jobs/housing imbalance. Alternative 3 (70,000 square feet per year) is borderline in its impacts. It is possible that Alternative 3 will add slightly to the jobs housing imbalance (500 housing units projected, demand for 810 units), but the housing incentives in this alternative are very strong, and it is possible that more units will be built than the number forecasted. Employment impacts from the other alternatives could be offset by the expected level of housing development.

It should also be noted that Alternatives 2 and 3 also contain a child care incentive where an additional commercial FAR of 0.25 to 1 would be permitted on CS and CN sites south of Hamilton provided child care facilities would be on-site and provided the proposed housing FAR to 1.0 or less. The likely impacts of this incentive are discussed in Section VI.G.2.a.(9) on Land Use impacts.

Neither the project nor the alternatives include new incentives for the BMR program. The BMR incentive of the present commercial zoning (up to 15 percent density bonus) would not be compatible with the developable floor area concept unless the city either lowered the square footage per unit in the DFA concept or allowed even higher total FAR levels. The Downtown Study Committee did not recommend a BMR incentive.

Therefore, provision of BMR housing would only be provided through the normal City BMR and housing impact programs. These programs are, however, the standard by which development in the City is traditionally evaluated.

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In terms of potential BMR units, the maximum number that could be expected would be 10 percent of the 500 new units, or 50 BMR units. However, BMR units are only required in projects of 10 or more units. Therefore if a large proportion of the expected 500 units is developed in structures of less than 10 units, then fewer BMR units will be built.

Palo Alto's Housing Mitigation Ordinance requires that 10 percent of the estimated demand generated by commercial and industrial development for low and moderate income units be provided either in the form of BMR units or in-lieu payments of \$50,000.00 for each BMR housing unit otherwise required. This requirement exempts the first 20,000 square feet of a project. Under the proposed size limit strategy for commercial projects, it is unlikely that many commercial projects would exceed 20,000 square feet in size. As a result, the proposed growth strategies are not expected to yield many BMR units or in-lieu fees under the provisions of the Housing Mitigation Ordinance.

A final housing concern is the existence of apartment units within the commercial zones which could be converted to commercial uses, including hotels. The Downtown Study Committee was asked by the City Council to explore means to prevent such conversions, but did not have time to discuss the issue. Staff has identified this issue as part of Alternatives 2 and 3 or the purpose of in this EIR.

Two proposals are made. First, the conversion of rental residential space to a commercial use be counted as new commercial square footage and subject to the

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annual allotment, and that any rating system for the annual growth limit be designed to give projects which do not involve the loss rental housing a higher priority than those that do involve such a loss.

The second proposal is that a Citywide ordinance be passed prohibiting the conversion of apartments to hotels. Such an ordinance would be based on the Citywide need for affordable rental housing and would provide for issuance of a permit to allow such conversion if the owner could not otherwise make a reasonable return on the investment. A similar law in Santa Monica has been upheld by the courts.

3. Mitigations

- a. Since the only project which has major potential to increase the job-housing imbalance is Alternative 5, which is the current zoning, no mitigations to offset the job-housing imbalance are required.
- b. Continue to apply the City BMR program and housing impact ordinance.
- c. Consider a BMR incentive (since none has been proposed for the Study's Project Alternatives, such as a greater total floor area for housing if BMR units are provided.

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- d. Count conversion of rental residential space to commercial in the annual allotment for new commercial development and in rating systems give projects not involving loss of rental housing higher ratings.

- e. Prohibit conversion of rental housing to commercial uses unless owner could not otherwise make a reasonable return on the housing investment.

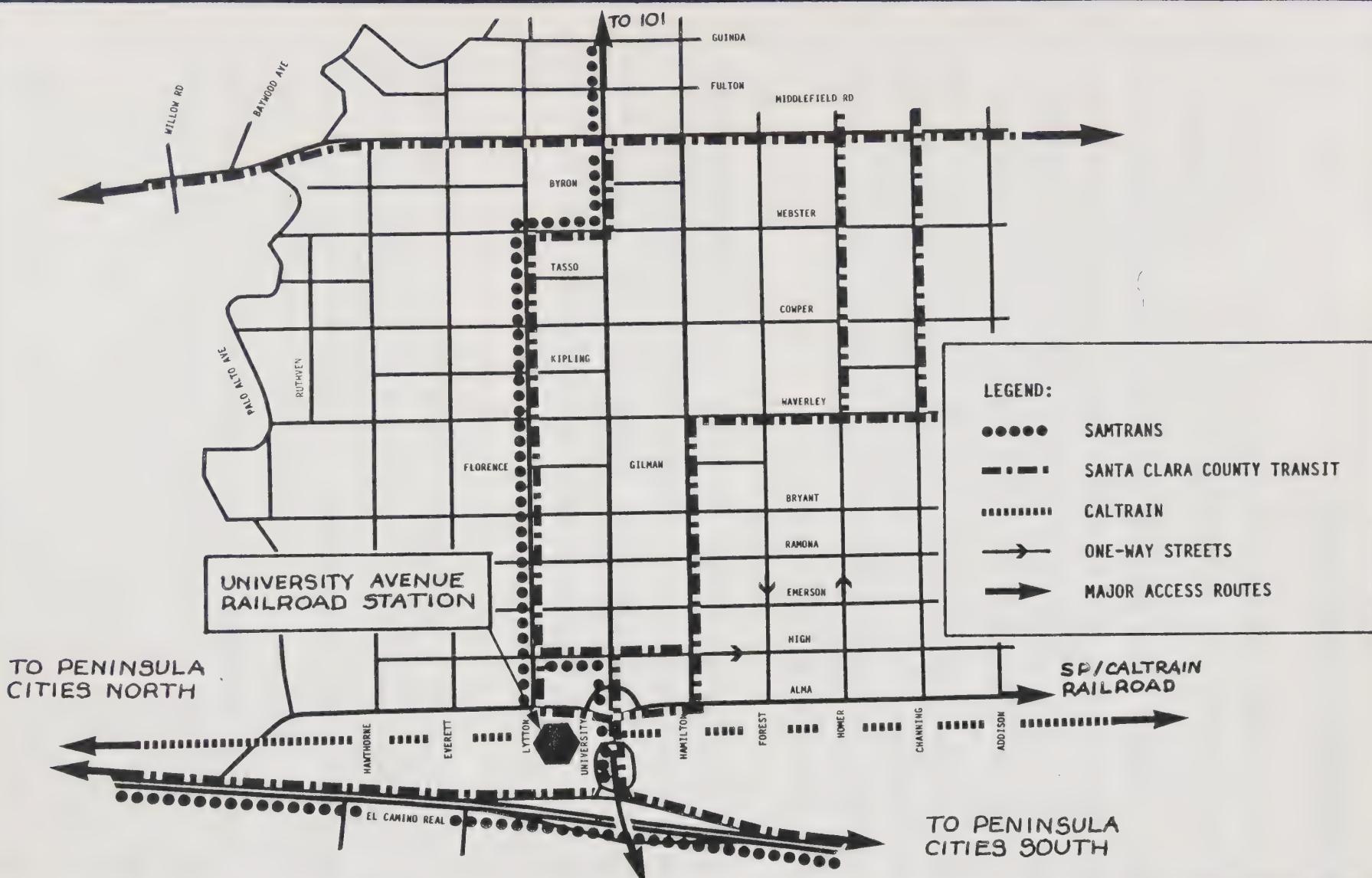
J. TRANSPORTATION, CIRCULATION AND PARKING

1. Setting

The study area is accessible via arterials and streets from the Peninsula's two north south freeways (I-280; 101). The major east-west arterial is University Avenue, connecting to 101. No direct connection to 280 exists or is planned, but access via University/Palm/Sand Hill Road is available. El Camino Real, the Peninsula's primary north-south arterial, traverses the study area on the western edge, accessible via a grade-separated intersection with University Avenue. Two other north-south arterials: Middlefield Road and Alma Street, cross the study area (see Map 17).

The Southern Pacific RR serves Downtown Palo Alto from the University Avenue station. Daily Caltrain service to San Francisco and San Jose is provided with 46 trains per day. The station is also a transfer point for routes of Santa Clara and San Mateo County transit services. Map 17 shows major access routes and transit services serving the study area.

Four out of five work trips to the study area are made by car. The 1980 Census found that 72 percent of all journey to work trips to the study area were single-occupant auto trips. Ten percent of all work trips were in vehicles with two or more occupants, for a total of 82 percent by car. The remaining 18 percent of work trips were divided among bicycle (6 percent), walking (5 percent), bus (5 percent), train (1 percent) and motorcycle (1 percent). See Table 26 below.



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MAP 17 -- TRANSPORT SETTING: MAJOR ACCESS ROUTES AND SERVICES

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Table 26
Travel Demand By Mode of Journey to Work

Mode of travel used	Trips	Percent
Drive Alone	7,689	72.2
Rideshare	1,028	9.7
Bicycle	632	5.9
Walk	531	5.0
Bus	471	4.4
Rail	137	1.3
Motorcycle	99	0.9
Unaccounted	51	0.6
TOTAL	10,638	100.0

SOURCE: 1980 Census. (For all work trips to Census Tracts 5112 and 5113: equivalent to Metropolitan Transportation Commission (MTC) traffic zone 302).

Existing traffic conditions in the study area were assessed with hose counts of daily volumes plus turning movement counts during the AM, Noon, and PM peak hours. Daily counts were taken at 28 streets and turning movement counts were taken at 38 intersections. Level of service calculations, using the Circular 212 planning method, were performed for all counted signalized intersections. With the exception of one count in 1983 and one in 1985, all survey data used to assess existing traffic conditions were collected during 1984.

Bicycling and walking are modes of travel to work used by 11% of the study area employees, and also used by a substantial proportion of shopping trips to and from the area. Consequently, these modes are supplied with bike lanes on selected arterials. Sidewalks exist on all streets in the study area. Bicycle volume is high enough to merit a City ordinance prohibiting bicycle riding on business district sidewalks. The City also has installed bike racks and lockers at a number of locations in the area.

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a) Traffic Volumes and Peak Hour Conditions

In order to interpret forecast traffic volumes at points in the network, some method is needed to calculate the capacity of the network to carry additional traffic. Since intersection capacity is considerably less than roadway capacity, gateway intersection capacity will be used to assess the effects of the forecast volumes on the roadway network.

Intersection capacity may change with changes to the number of lanes, the arrangement of lanes, permitted vehicular movements, length of turn lanes, pedestrian volumes, and signal timing, as well as such details as bus volumes, presence of bus stops, and parking along the approaches. To simplify comparison, all forecasts will be presented as if the study area intersections will continue exactly as they are today.

For planning purposes, the most widely used method of assessing capacity at signalized intersections is the critical movement method, as described in the Transportation Research Board's "Interim Materials on Highway Capacity" Circular 212 of January, 1980. This method defines an intersection's capacity, and assesses its operating condition on a scale of from "A" to "E". "E" represents the service level where volumes reach the rated capacity. If the traffic volume seeking to use the intersection is in excess of capacity, service degrades to F, and the actual number of cars able to traverse the intersection begins to decline. Table 27 presents a description of each service level.

Table 27

Level of Service Description

Level of Service	Description of Condition During One Hour	Average Stopped Delay, All Vehicles (Seconds)	V/C Ratio (Volume as percent of Capacity)
A	Free Flow. No approach phase is fully used and no vehicle waits longer than one red indication. Insignificant delays.	0-8	0-59%
B	Stable Operation. An occasional approach phase is fully used. Many drivers begin to feel somewhat restricted within platoons of vehicles. Minimal delays.	8-15	60-69%
C	Stable Operation. Major approach phase may become fully used. Most drivers feel somewhat restricted. Acceptable delays.	15-25	70-59%
D	Approaching Unstable. Drivers may have to wait through more than one red signal indication. Queues develop but dissipate rapidly, without excessive delays.	25-40	80-89%
E	Unstable Operation. Volumes at or near capacity. Vehicles may wait through several signal cycles. Long queues form upstream from intersection. Significant delays.	40-60	90-99%
F	Forced Flow. Represents jammed conditions. Intersection operates below capacity with low volumes. Queues may block upstream intersections. Excessive delays.	60 and greater	100% or less

Sources:

"Highway Capacity Manual," Highway Research Board, Special Report No. 87, Washington, D.C., 1965.

"Interim Materials on Highway Capacity," Transportation Research Board, Circular No. 212, Washington, D.C., January 1980.

"Highway Capacity Manual," Transportation Research Board, Special Report 209, Washington D.C., 1985.

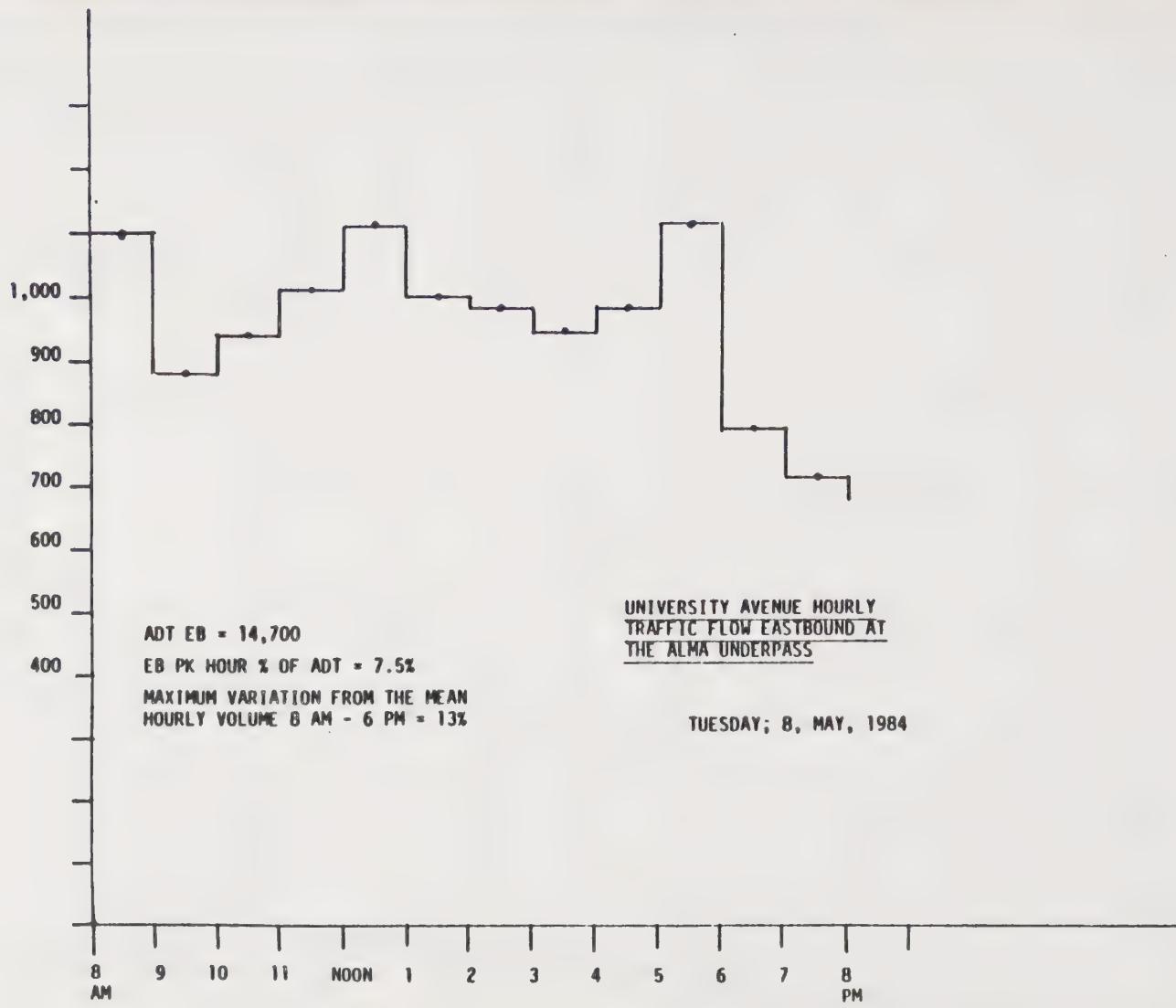
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A further refinement of these levels will be used in this report -- a service level between, say, D and E will be categorized as D/E (V/C = 0.89 to 0.92).

In interpreting these service levels, the following guidelines are used.

LEVEL OF SERVICE	GUIDELINE
o C or better	Acceptable as a design standard.
o D/E or better	Acceptable for operating conditions during the peak hour
o E or worse	Unacceptable and requiring mitigation measures.

Finally, service level assessments are for a single hour of the day, which in Palo Alto typically falls between 4:30 and 6:00 PM. Traffic volumes during this hour are usually higher than at any other hour. The peak hour chosen for the traffic assessments used in this report was 5:00-6:00 P.M. As peak hour volumes approach capacity, congestion delay causes drivers who can to shift to non-peak hour travel times. This "spreading" of the peak period has already occurred in the study area. Figure 1 shows the 8 AM to 8 PM hourly traffic eastbound on University at the Alma underpass; eastbound hourly volume varies less than 25 percent from hour to hour throughout the day. Another effect of congestion delay is diversion from congested routes to other, less congested routes. Diversion results in traffic increases on residential streets paralleling arterials and collectors. Some diversion of this type is already occurring in the study area (see Map 19).



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FIGURE 1 -- UNIVERSITY AVENUE HOURLY TRAFFIC FLOW EASTBOUND AT THE ALMA UNDERPASS, 1984

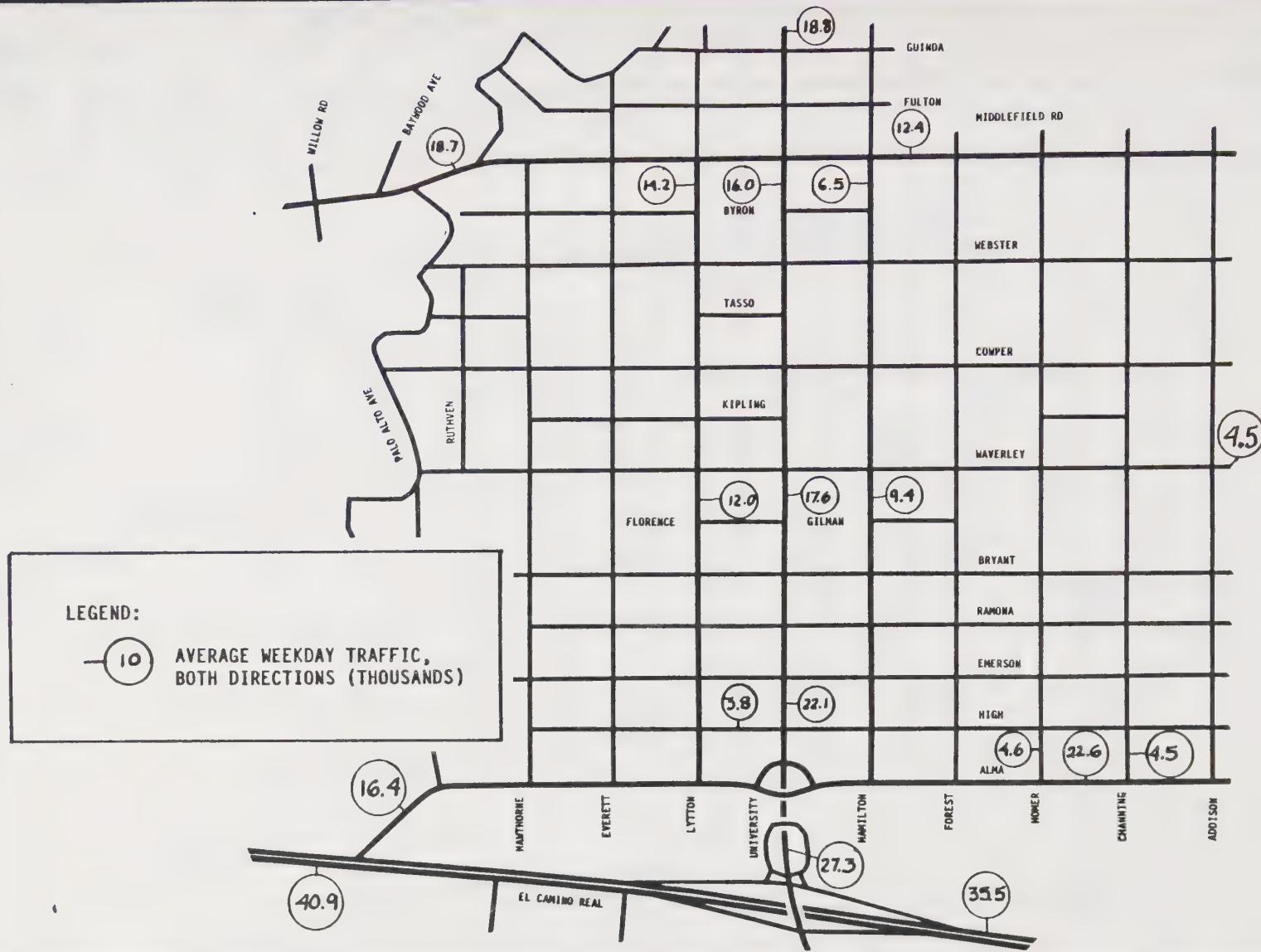
b) Existing Peak Hour Traffic Conditions, 1984

Maps 18-20 present existing traffic conditions in the study area for the 1984 base year. Traffic conditions are shown as average daily traffic (Map 18); peak hour directional hourly volumes and level of service (Maps 19 and 20). To assess traffic conditions, six key gateway intersections were identified. The San Francisquito Creek to the north and the SP tracks to the west cause these gateway intersections to act as funnels for external traffic entering or leaving the study area. This concentration of traffic flow at these gateways means that they reach capacity sooner than intersections for which alternative routes are available, and hence are appropriate points to assess the traffic impacts of the Project.

Six key gateways can be said to carry the bulk of the total gateway study area traffic. These gateways are listed below, with the share of PM Peak volumes each carries.

Table 28
Gateway Traffic Volumes

PERCENT OF PM PEAK VEHICLES PER HOUR	SHARE OF GATEWAY TOTAL
University east of El Camino	24%
Alma south of Homer	21%
Middlefield south of Willow	19%
University east of Guinda	13%
Palo Alto/Alma east of El Camino	13%
Middlefield south of Hamilton	10%



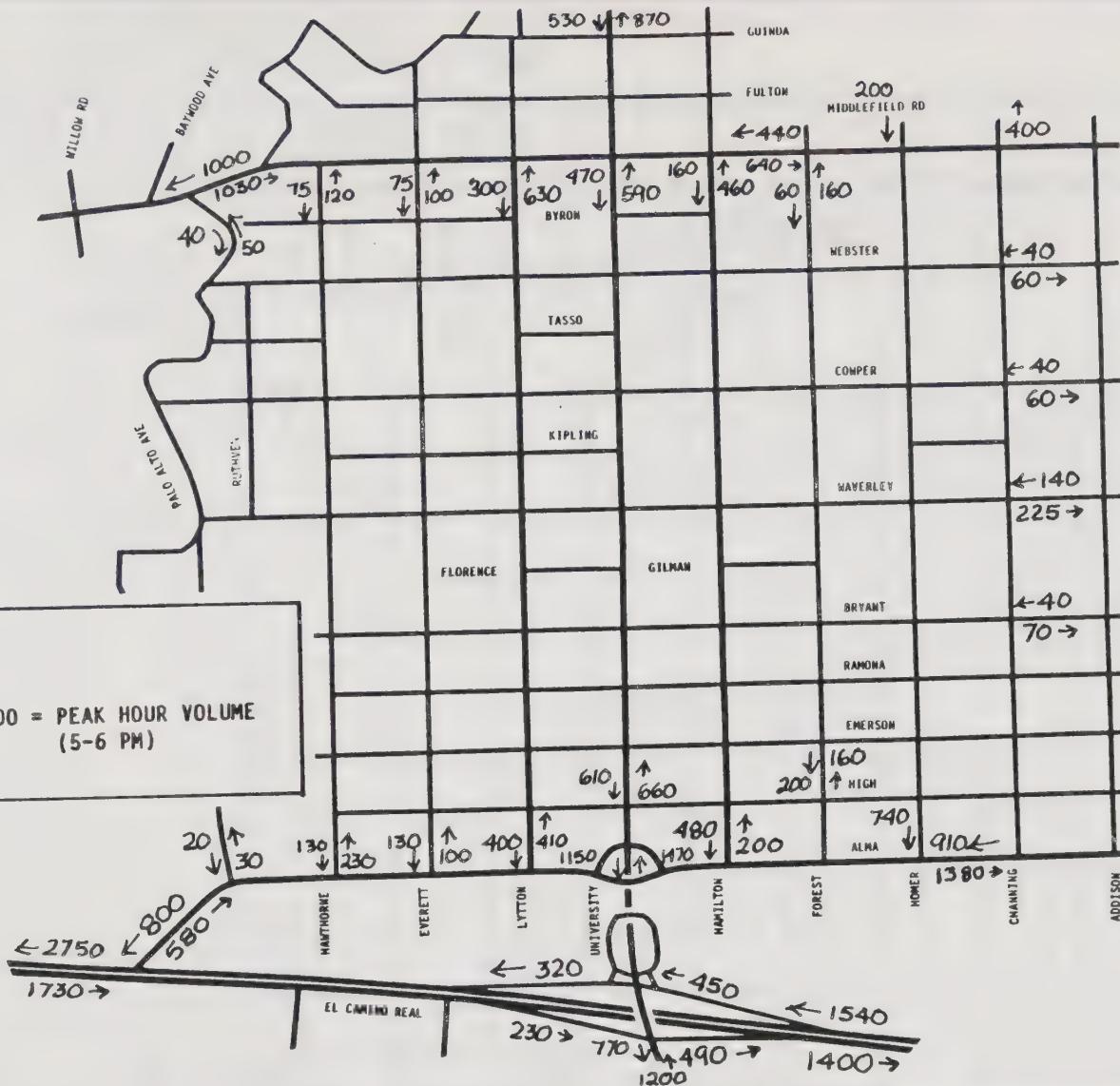
DOWNTOWN STUDY EIR

MAP 18 -- EXISTING TRAFFIC CONDITIONS, 1984
 A. AVERAGE DAILY TRAFFIC



LEGEND:

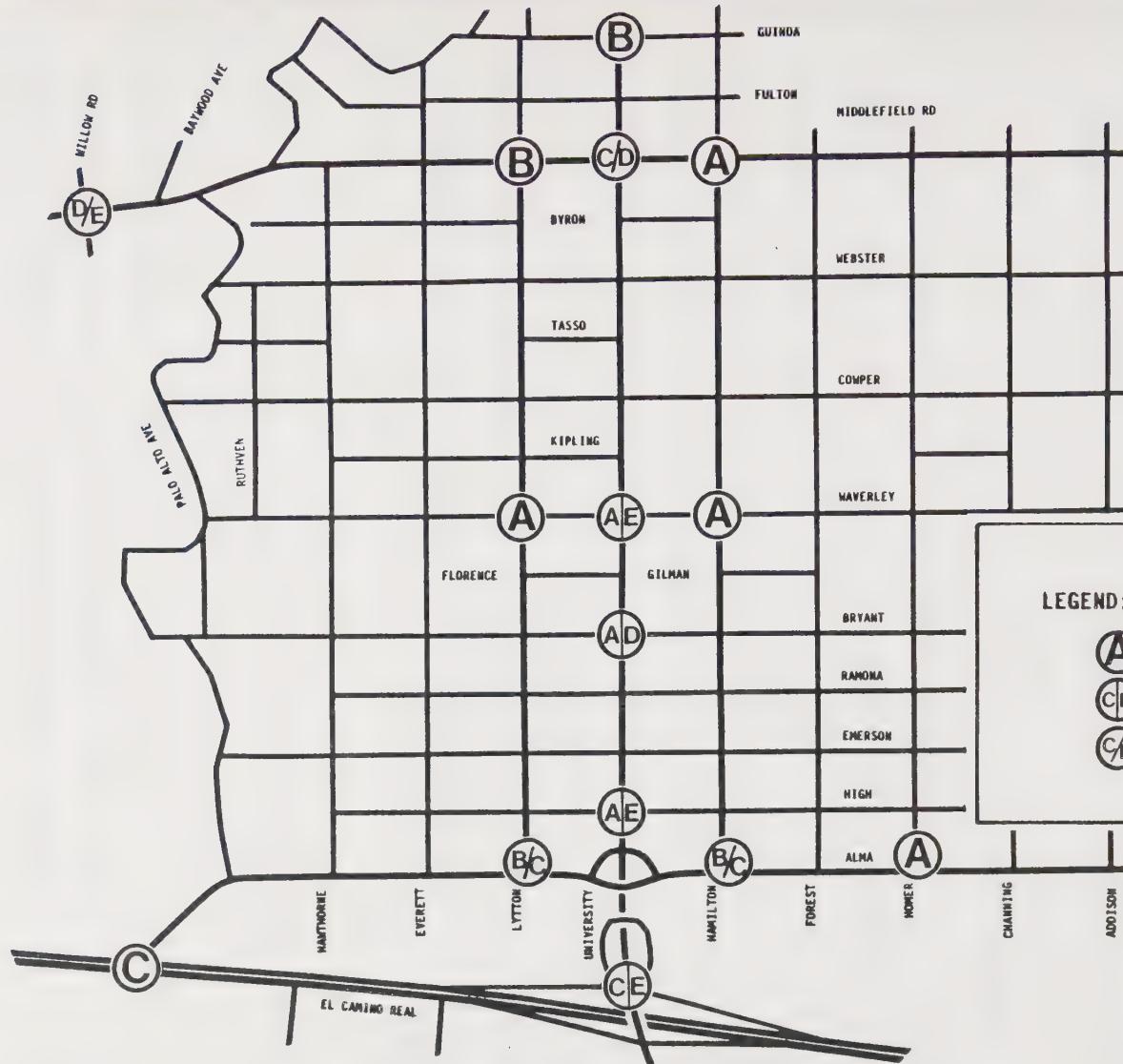
↔ 1500 = PEAK HOUR VOLUME
(5-6 PM)



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MAP 19 -- EXISTING TRAFFIC CONDITIONS, 1984
B. PEAK HOUR VOLUMES



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MAP 20 -- EXISTING TRAFFIC CONDITIONS, 1984
C. PM PEAK LEVEL OF SERVICE



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During the a typical weekday in 1984, these six gateways funneled 112,000 vehicles in both directions. During the 5:00 - 6:00 P.M. peak hour, about 5,000 vehicles entered and 5,800 vehicles left through these six gateways. Most of the study area traffic travelled in and out of the study area on Middlefield, University and Alma. Almost ten (9.6) percent of these vehicle trips occurred during the 5:00 - 6:00 P.M. peak hour.

Map 20 presents existing PM peak hour conditions at selected intersections in the study area. Using the generally accepted standard of "D" or better to define an acceptable level of service, all of the 38 intersections in the study area operate at acceptable levels of service during the PM peak hour. One of the intersections included in this report is located outside of the City of Palo Alto. This intersection, Middlefield at Willow, was included because it serves as a "gateway" for the Downtown Study area from the north and east. Two of the gateway intersections may occasionally reach a level of service of "E". Overall, for the duration of the peak hour, average service level at all study area intersections is acceptable under existing (1984) traffic volumes.

c) Existing Parking Conditions, 1984

From 1957 to 1984, the City of Palo Alto relied upon the Downtown Parking Assessment District to supply parking to support Downtown development. Because of the Assessment District, new commercial buildings in the study

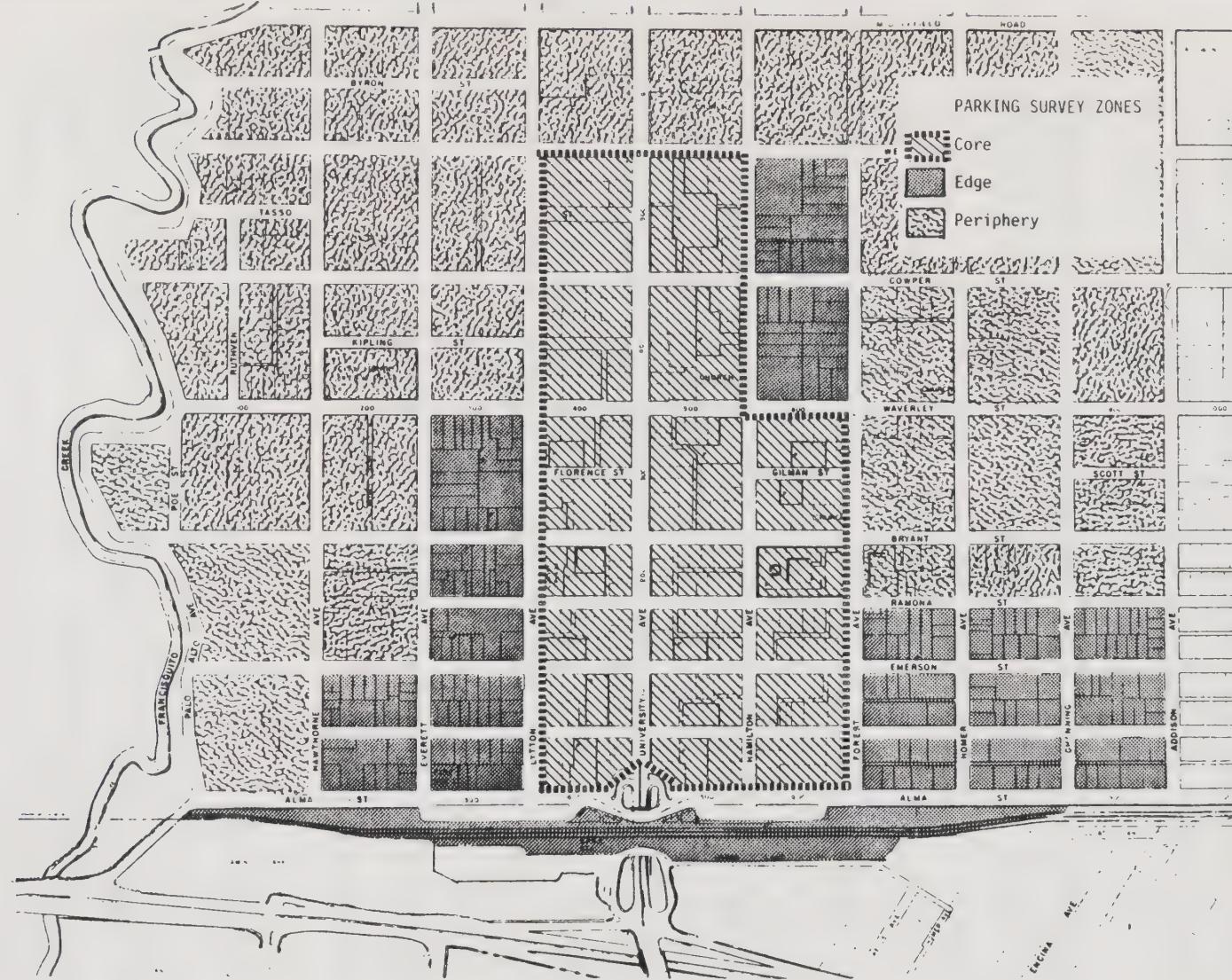
VI.J. Transportation, Circulation and Parking

area were allowed to be built without on-site parking. Assessment District parking spaces did not keep pace with growth, and by 1985, the available parking in the study area could be described as "full."

Existing parking conditions were assessed through an aerial photogrammic survey of parked vehicles in the study area. Photos were taken at 7:00 A.M., 10:30 A.M. and 12:30 P.M. on Tuesday, March 22, 1984.

Map 21 identifies the three parking zones used to assess existing parking conditions. At 12:30 PM, all on-street parking space in the core and edge zones shown in Map 21 was effectively occupied. Some off-street parking was available in the core zone, but otherwise these two zones were filled to capacity. On-street space in the residential periphery was 78 percent occupied. Approximately 1,220 vehicles of the total cars parked in the periphery were not parked by residents of this zone, and thus must have been parked in the residential periphery by visitors, customers and employees of the Downtown core. (For details, see Table 29 and Table 30).

The survey confirmed that parking supply was effectively full in the core and edge zones of the Downtown area. Full occupancy results in additional vehicle travel, emission and congestion delay caused by parking searches in the Downtown business area. Every day, some 1,220 vehicles park on-street in the surrounding residential periphery.



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MAP 21 -- PARKING DEMAND SURVEY ZONES, 1984



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Table 29

Downtown Parking Supply and Demand, By Zone

PARKING SUPPLY

ZONE	ON-STREET						OFF-STREET			
	U	2-3 Hour	1 Hour	Curb Zone	Total On	Private	City Permit	City 2-3 Hour	Total Off	Total On + Off
Periphery	2051	61	13	7	2132	919	0	26	945	3077
Edge	362	271	81	5	719	1722	36	27	1785	2504
Core	27	99	656	67	849	1141	926	783	2850	3699
TOTAL	2440	431	750	79	3700	3782	962	836	5580	9280
PERCENT OF TOTAL	(26)	(5)	(8)	(1)	(40)	(41)	(10)	(9)	(60)	(100)

NOTE: U = Unlimited time. These data reflect de facto use of spaces in driveways and in tandem parking areas currently being used for parking purposes.

PARKING DEMAND

ASSUMED DESTINATION	ZONE WHERE CARS PARKED						TOTAL DEMAND		
	PERIPHERY		EDGE		CORE				
	Off	On	Off	On	Off	On	Off	On	Both
Periphery	667	451	0	0	0	0	667	451	1118
Edge	0	0	1510	54	0	0	1510	54	1564
Core	0	1220	0	624	2306	765	2306	2609	4915
TOTAL	667	1671	1510	678	2306	765	4483	3114	7597

NOTE: Total demand shown, including cars parked before 7:00 AM (overnight parking). All overnight parking demand is assigned to the zone in which it was observed during the survey.

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Table 30

Peak Period Occupancy and Spaces Available

ZONE	SPACE TYPE	ASSUMED EFFECTIVE CAPACITY	12:30 PM OBSERVED OCCUPANCY	SPACES AVAILABLE	NOTES
PERIPHERY	On	0.90	78%	354	Residential area. Not suitable for parking.
	Off	0.85	71%	184	
	Total			538	
EDGE	On	0.90	94%	0	Over capacity. Over capacity.
	Off	0.85	85%	7	
	Total			0	
CORE	On	0.90	90%	0	Over capacity.
	Off	0.85	81%	117	
	Total			116	
TOTAL	On			322	
	Off			<u>308</u>	
	Total			630	

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An excess of such parked vehicles inconvenience the residents and conflicts with the residential character of this zone.

A summary of the methodology used for this aerial photogrammetric parking survey is presented in August 10, 1984 staff report, available from the Department of Planning and Community Environment.

d) Employee Traffic and Parking Survey, 1984

During February-March, 1984, 5,650 employees working in a 33 block area between Everett and Forest; Alma and Webster were given a mailback questionnaire concerning traffic and parking. Fifty-two percent (2,951) of these employees returned the questionnaire. Zip code of residence, route to work, and preferences and suggestions regarding traffic and parking in the Downtown, were tabulated for these respondents and summarized in Table 31. As the table reveals, a great majority of the Downtown employees (90%) want additional parking, although a considerable share (42%) also would like to see more ridesharing incentives. Only one percent made suggestions for traffic improvements, indicating that congestion is not perceived as a major problem by Downtown employees. This is not to say that congestion does not affect other downtown groups, such as business clients or retail customers, since these groups are not represented in the sample.

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Table 31
 Findings of the Downtown Parking and Traffic Survey
 (n=2951)

<u>PREFERENCES</u>	<u>Percent</u>
- Want more all day parking	90
- Want parking structures	63
- Want more ridesharing incentives	42
- Rate ridesharing more important than parking	20
- Suggest parking fee be based on time	12
- Suggest improvements in parking lots	5
- Suggest more 1- and 2-hour spaces	4
- Suggest more bicycle facilities	3
- Suggest traffic improvements	1

<u>RESIDENCE</u>	
- Live in Palo Alto, East Palo Alto	32
- Live South of Palo Alto City limits	32
- Live North of Menlo Park, Atherton	14
- Live in Menlo Park, Atherton	11
- Other	7
- Live in East Bay	4

<u>ROUTE TO WORK</u>	
- Middlefield South	12
- Middlefield North	10
- Alma South	18
- Alma North	17
- Sand Hill Road through Stanford University	9
- Embarcadero Road	7
- Dumbarton Bridge	4.5

VI.J. Transportation, Circulation and Parking

2. Impacts

Growth in residential population, employment and business activity permitted in the study area by the project will cause transportation, circulation and parking impacts.

a) 1995 Growth Levels

Impacts of the Downtown study were assessed by superimposing the cumulative traffic and parking demand generated by all approved projects in the study area and vicinity on the 1984 base conditions (including the "pipeline" projects), plus a forecast of expected growth in regional through traffic in the study area. All unoccupied floor area of approved projects as of March, 1984 was counted as "the pipeline" in the forecasts used in this document. For through traffic generated by land use and travel demand changes outside the study area, expected growth was forecast through 1995. For growth generated outside Palo Alto City limits, an overall growth rate of 1.5% per year for all "through" traffic was assumed through 1995, based upon historical rates of growth observed on arterial streets in Palo Alto.

Since the project growth strategies cover only a seven year period, yet two of the alternatives to the project cover a ten year period, it was necessary to choose a single comparison year for both project and alternatives. The year chosen was 1995, a date which is close enough to

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allow reasonable forecast accuracy, yet remote enough to assess the project's longer term impacts. In order to allow a common forecast period, the seven-year scenarios are assumed to be followed by a 3-year period of no growth in the area.

(1) Pipeline Projects

Table 32 lists the 611,500 square feet of pipeline projects identified as having been approved between January 1, 1980 and September 18, 1984. After subtracting the March, 1984 occupied floor area of these projects (45,000 square feet) and the floor area of existing occupied structures to be demolished after March, 1984, (44,000 square feet), the total pipeline floor area is 522,900 square feet, net of existing uses (see Table 32 for details).

To estimate vehicle trips generated by these pipeline projects, their approved uses by floor area were multiplied by the standard City of Palo Alto trip generation rates for each use category. The results are shown below in Table 33.

As Table 33 reveals, projects already provided prior to September 18, 1984 will add considerable traffic and parking demand to the study area, once they are fully occupied. Since no additional roadway or intersection capacity is planned or approved, approximately 13,650 additional vehicle trips generated by these pipeline projects will

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Table 32
Pipeline Projects - Downtown Study Area

LOCATION/PROJECT	GROSS FLOOR(a) AREA [SQUARE FEET]	NET CHANGE(b) FROM 1984 FLOOR AREA [SQUARE FEET]	PROJECTED USES
417-421 Alma	12,034	+ 12,034	Office
423 Alma/Lot Q	36,310	+ 36,510	Multi-Family Residential and Retail
901-909 Alma	3,500	- 1,322	Telecommunications
520 Cowper	67,570	+ 48,956	Hotel, Retail and Restaurant
913-921 Emerson	13,000	+ 13,000	Office
100 Hamilton	72,040	+ 72,040	Office
145 Hamilton	22,464	+ 22,464	Office
165 Hamilton	15,284	+ 7,169	Office and Retail
300 Hamilton	41,508	+ 26,451	Office and Bank
400 Hamilton	97,740	+ 97,740	Office and Bank
557 Hamilton	14,010	+ 11,769	Office
251 High	4,546	+ 2,386	Office
444 High	14,140	+ 14,140	Office and Retail
130 Lytton	34,539	+ 22,539	Office
248 Lytton	25,876	+ 16,676	Office and Bank
379 Lytton	30,000	+ 21,312	Office
435-439 Tasso	34,263	+ 34,263	Office
101 University	27,180	+ 24,180	Office
119 University	8,650	+ 8,650	Office and Restaurant
301 University	28,875	+ 28,875	Office and Bank
555 University	7,735	+ 3,030	Office
TOTAL	611,464	+ 522,872	

Notes:

- Total floor area of building after project.
- Floor area added (or subtracted) from 1981 Study Area floor area. Changes less than gross floor area result from: (1) Displacement of previously existing floor area; (2) Projects which involve additions to existing floor area; and (3) Projects which were partially occupied in Spring 1984.

Table 33
Pipeline Traffic and Parking Generation

USE CATEGORY	Thousand of sq. ft. in pipeline	Average Daily Traffic per 1,000 sq. ft.	Percent P.M. Peak Traffic	Percent P.M. Outbound Traffic	Peak Parking Demand per sq. ft.
HIGH INTENSITY (Retail, banking, etc.)	30.6	130	12.6	50	6.5
MEDIUM HIGH INTENSITY (Eating/drinking auto, service, etc.)	10.4	60	9.5	65	6.5
MEDIUM LOW INTENSITY (Office, financial)	405.9	30	8.3	80	3.2
LOW INTENSITY (Hotel, residence)	49.9	10	10.0	20	1.0
VACANT	26.1	0	0	0	0
GROSS TOTALS(1)	552.9	17,278	1,621	1,108	1,615
ASSIGNED TOTALS	552.9	13,650	1,280	875	1,615

Note (1): Traffic totals are not all assigned to the network of intersections reported. An assignment rate of 0.790 was used, based on a calibration of the existing floor area trip generation with existing traffic flows during the peak hour.

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increase congestion and travel delay in the study area, even without the proposed project.

The projects in the "pipeline" include 973 private on-site parking spaces, so that the 1,615 new peak parking demand will not all impact the City streets and parking lots. The net off-site demand generated by the pipeline is thus 642 spaces. In part to mitigate this pipeline parking impact, two new public garages are being built or developed in cooperation with the City, one on Lot Q with 52 net new spaces, and the other on Lot J with 251 net new spaces for a total of 303. These garages will both open in 1985. Subtracting their capacity from the pipeline demand, the unmet pipeline off-site parking impact is a new demand for 339 spaces in the peak period.

This new pipeline parking demand will fill all the existing available parking space in the core and edge zones (124 spaces), resulting in some 215 new cars parked in the surrounding residential periphery.

(2) Regional Traffic Growth to 1995

A 1.5 percent growth rate for regional through traffic, defined as traffic without origin or destination within the study area, will be used for the purposes of this study. This rate is consistent with trend data.

The survey of through traffic conducted by City staff in May, 1983

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was used to estimate the share of peak hour traffic which was just passing through Palo Alto. This survey found that 31 percent of the southbound traffic on Middlefield at Palo Alto Avenue and 34 percent of the southbound El Camino Real peak hour traffic was through traffic. These data were used to construct an estimate of the peak hour directional volume of through traffic on the study area arterials. The 1.5 percent annual growth rate was then applied to each arterial's through traffic share to give a 1995 forecast.

b) Traffic Impacts, 1995

The proposed Project contains lower and upper limits of growth for the study area. The lower limit is essentially a prohibition of further growth, except for 20,000 square feet of new floor area to be allowed as exemptions and an approval potential for 750 dwelling units of housing. The upper limit would allow 350,000 square feet of new commercial development by 1992, plus 20,000 square feet for exemptions and 750 dwelling units (see Table 34 for details).

In order to forecast the traffic which the Project will generate, the commercial floor areas shown in Table 34 was assumed to follow the same distribution of activities (office, retail, etc.) approved during 1980-1984 (see Tables 32 and 33). No additional expansion of ground floor retail uses was assumed beyond the proportion shown in Table 33, because it was not possible to predict whether such expansion will occur as a result of

Table 34

1995 Traffic Generation of the Project
and Alternatives, Compared to Base and
No Growth Scenarios

LAND USES (GFA in 000 sq. ft.)	1984 BASE	1995 NO GROWTH (4)	THE PROJECT		ALTERNATIVES TO THE PROJECT				
			LOWER 1A	UPPER 1B	2	3	4	5	
Commercial Area, Growth per Year (1)	0	52	0	50	17.5	70	50	110	
Addt'l. Exempt Comm.	0	0	20	20	20	20	20	0	
Total 1985-1995 (1)	2,894	523	20	370	195	510	370	1,100	
Residential Units (2)	3,620	110	750	750	750	750	750	750	
Total ADT	112,200	13,650	4,798	13,933	9,365	17,583	13,933	32,989	
PM Peak Trips, Total	10,792	1,281	526	1,432	1,003	1,774	1,432	3,220	
PM Peak, Outbound	5,836	875	163	782	489	1,016	782	2,004	

Notes:

1. Areas are the sum of primary and peripheral study areas.
2. Housing shown for both primary and peripheral study areas.
3. 1984 traffic generation for primary study area only.
- (4) Amounts shown correspond to projects approved but not occupied 3/84. See Table 32 for details.

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the Project's ground floor retail provisions. The land use proportions and trip generation rates shown in Table 33 were then used to derive forecast traffic.

The Project, as proposed, includes development approval procedures which allow exemptions with potential consequences of 20-50,000 square feet of commercial floor area. The traffic generation was based on the lower amount of 20,000 square feet, as shown in Table 34. If the actual exemption amount reaches 50,000 square feet, additional traffic would result, but the amount of this traffic (approximately 740 daily and 70 PM peak hour vehicle trips) would not significantly change the traffic findings of this report.

The traffic generated by the Project was next assigned to the network using the results of the 1980 Census journey-to-work data and the results of the 1984 Downtown employee traffic and parking survey. The generation and assignment procedures were then calibrated using 1984 traffic volumes and existing land uses. A calibration adjustment of 0.790 was used for Project traffic assigned to the network.

The method of forecasting traffic growth used in this report does not assume any changes will occur in the mode choices of travellers from those being made today, as shown in Table 26. This approach results in some over estimation of vehicular traffic, since both Caltrain and the County transit districts plan to increase the frequency of their service during the

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of 46, and Santa Clara Transit will add 208 vehicles to its fleet of 542 by the year 2000, with consequent increases in rail and bus ridership. Since the scheduling of these changes is not yet known, a "worst case" forecast was used which assumes no mode shift to transit, ridesharing, bicycle, or pedestrian travel. If shifts occur, the traffic volumes will be less than those used in this report.

Table 35 lists the traffic impacts for the lower and upper limits of the projects, and for all alternatives, compared with base and no-growth scenarios. The no-growth scenario shows the 1995 level of traffic which would occur if there were no added development in the study area beyond the "pipeline" approvals. Table 35 presents the PM peak hour level of service which would result at each intersection for each of the cases.

Table 35

1995 Peak Hour Traffic Impacts of the Project

INTERSECTION PM PEAK LEVEL OF SERVICE	1984 BASE	1995 NO GROWTH	THE PROJECT		ALTERNATIVES TO THE PROJECT				
			LOWER	UPPER	1A	1B	2	3	4
1. El Camino & University	B/C	C/D	C/D	D	D	D/E	D	E	
	<.....	sometimes E.....	>	<.....	sometimes E.....	>	<.....	sometimes E.....	>
2. University & High	A	A	A	A/B	A	B	B	B	C
	<.....	sometimes E.....	>	<.....	sometimes E.....	>	<.....	sometimes E.....	>
3. Middlefield & University	C/D	D	D/E	E	D/E	E	E	E/F	
4. Alma & Hamilton	B/C	C/D	C/D	D	D	D/E	D	F	
5. Middlefield & Hamilton	A	A	A/B	B	B	B	B	B	C
6. Alma & Lytton	B/C	C/D	D	D	D	D/E	D	E	
7. Middlefield & Lytton	B	C	C	C/D	C/D	C/D	C/D	D/E	
8. Alma & Homer	A	A/B	B	B	B	B/C	B	C	
9. University & Guinda	B	C/D	C/D	D/E	D	D/E	D/E	F	
10. El Camino Real & Palo Alto/Alma	C	D	D	D	D	D/E	D	D/E	
11. Middlefield & Willow	D/E	E/F	E/F	F	E/F	F	F	F	

Notes:

This table includes regional through traffic.

Intersection No.1 and No.2 sometimes operate at LOS = "E" due to blocking by cars queuing for the next 'downstream' intersection, or due to merge conflicts in the eastbound approach to High Street.

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To assess the significance of these volume and service level changes, any change of one full level of service or more will be classified as perceptible and therefore significant. A change of one half or less will not be considered significant unless it also results in worsening of the service level to below "D/E." Additional traffic added to an intersection whose service level is below "D/E" will be classified as a significant adverse impact. Using this definition, four intersections are significantly impacted by the upper limits of the Project, as shown in Table 36.

For the lower limit of the Project, one intersection: Middlefield at Willow, is significantly impacted by the Project. For the upper limit, the four intersections listed in Table 36 below are significantly impacted by Project traffic. The impact at two of these: Middlefield and Hamilton and Guinda and University is acceptable. However, mitigations are recommended for three, as discussed in Section J.3.a. No significant adverse traffic impacts of the Project were found at other intersections in the study area.

Table 36
Intersections Impacted by the Project

INTERSECTION	NO GROWTH	1995 PM PEAK WITH PROJECT	
		LOWER	UPPER
1. Middlefield and University	D	D/E	E
2. Middlefield and Hamilton	A	A/B	B
3. Guinda and University	C/D	C/D	D/E
4. Middlefield and Willow	E/F	E/F	F

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Traffic impacts of the alternatives to the Project are also shown in Table 35. The four alternatives assessed are as follows:

- Alternative 2: 17,500 square feet annually for 10 years, plus 20,000 square exempt commercial.
- Alternative 3: 70,000 square feet annually for 7 years, plus 20,000 square feet exempt commercial. (No growth 1992-1995)
- Alternative 4: 50,000 square feet annually for 7 years, plus 20,000 square feet exempt commercial. (No growth 1992-1995)
- Alternative 5: 110,000 square feet annually for 10 years, no exemptions.

All the alternatives to the Project are assumed to allow the same amount of growth in residential units: seven hundred fifty (750) total dwellings by 1995. Traffic for the four alternatives is shown in Table 34 and their levels of service are shown in Table 35. The same mix of uses are as assumed were approved for commercial floor area projects during 1980-1984 (shown in Table 33).

Alternative 2 results in two significantly impacted intersections, one of which results in peak hour service below acceptable levels, as shown in Table 37.

Table 37
Intersections Impacted by Alternative No.2

INTERSECTION	1995 PM PEAK LEVEL OF SERVICE	
	NO GROWTH	WITH ALTER. NO. 2
Middlefield and Hamilton	A	B
Middlefield and Willow	E/F	F

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Mitigations for these impacts at Middlefield and University or Willow would be the same as those proposed below for the project in Section J.3.a

Alternative No. 3 results in nine significantly impacted intersections, two of which result in PM peak hour service levels below acceptable levels. These intersections are:

Table 38
Intersections Impacted by Alternative No. 3

INTERSECTION	1995 PM PEAK LEVEL OF SERVICE	
	NO GROWTH	WITH ALTER. NO. 3
El Camino and University	C/D	D/E
University and High	A	B
Middlefield and University	D	E
Alma and Hamilton	C/D	D/E
Middlefield and Hamilton	A	B
Alma and Lytton	C/D	D/E
Alma and Homer	A/B	B/C
University and Guinda	C/D	D/E
Middlefield and Willow	E/F	F

Alternative No. 4 has traffic impacts which are identical to those discussed above for the Project--upper limit (see above). Mitigations for these impacts are discussed below in Section J.3.a.

Alternative No. 5 results in significant traffic impacts at all ten of the eleven intersections studied. Of these ten intersections, six would operate at unacceptable levels of service as a result of the traffic generated by this alternative (See Table 35 for details).

c) **Parking Impacts of Zoning Proposals, 1995**

The parking impacts of the Project or its alternatives will consist of new parking demand added to the 1984 existing deficiency of 1220 spaces, after the parking deficit effects of the pipeline and new public parking structures are included. Assuming no new parking structures other than those already built on Lots Q and J, the 1995 starting deficit will be 1,560 parking spaces, or 340 more than 1984. (See Table 39)

The Project and all of its alternatives except the No Project alternative (No.5) include a new zoning ordinance to ensure that all new development projects provide 100 percent of their parking needs. The parking requirement for new parking is to be set at a uniform rate of spaces per every 100 commercial square feet of gross floor area. Residential units would continue to be required to provide all parking, as they are today, for all alternatives.

The uniform parking requirement of 4 per 1,000 square feet of commercial use departs from the current ordinance, which has separate parking rates for each land use. This uniform rate is proposed in order to allow changes in the use of Downtown buildings without the need to adjust the number of parking spaces required. This ability to change uses is essential to the Downtown vitality. The previous no parking requirements (assessment district) system allowed this flexibility.

Table 39
Cumulative Peak Period Parking Impacts

	1984 BASE	1995 NO GROWTH	1995 THE PROJECT(2)		1995 ALTERNATIVE TO THE PROJECT			
			LOWER	UPPER	2	3	4	5
1. Cumulative deficit	1220	1220	1560	1560	1560	1560	1560	1560
2. New demand	—	1615	1279	2361	1776	2829	2361	4517
3. New private supply	—	972	1125	2207	1314	2367	1899	2595(3)
4. Net demand (2-3)	—	643	154	154	154	154	154	1922
5. <u>New public supply</u>	—	<u>303</u>	<u>308</u>	<u>308</u>	<u>308</u>	<u>308</u>	<u>308</u>	<u>0</u>
6. Net change to deficit (4-5)	—	<u>+340</u>	<u>-154</u>	<u>-154</u>	<u>-154</u>	<u>-154</u>	<u>-154</u>	<u>+1922</u>
7. Cumulative deficit (1+6)	1220	1560	1406	1406	1406	1406	1406	3482

Notes:

- (1) Assumes 50 KSF exempt from parking requirements. This is a "worst case" assumption. Actual total may be 20 KSF.
- (2) Assumes 2/3 of unmet demand will be met by the City using public assessment to build a garage. Project description recommends considering additional public parking projects to reduce cumulative deficit.
- (3) Forty (40%) percent of commercial parking requirement assured to be provided privately.

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With a uniform parking requirement, some uses in new buildings would have to provide more parking than they need while other uses may generate more parking demand than the spaces required. Nevertheless, the 4 per 1,000 square feet requirement is higher than the weighted average of pipeline uses in the Downtown using the old rate structure (3.1 spaces per 1,000). The new 4 per 1,000 rate anticipates a slight increase in average demand per square foot as a result of the ground floor use restrictions, and provides a reasonable cushion against future changes in parking demand.

Table 39 identifies peak parking impact for the the Project and alternatives. As will be discussed in more detail below, the Project and Alternatives 2 through 4 all exempt up to 50,000 square feet from parking requirements, with a resulting net demand of 154 spaces. To meet this demand, plus allow another 50,000 square feet to meet requirements with in lieu payments, a public parking structure of at least 308 (2 x 154) spaces is assumed as part of the project and Alternatives 2 through 4. Alternative 5 does not provide any public parking, and assumes 40% of generated parking demand will be provided privately.

The project description suggests that even more public parking may be considered, so that the total 308 spaces represents a minimum public parking supply provided by the project.

The Project and alternatives (other than "No Project") reduce the

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parking deficit by 154 spaces. There may not be a perfect correspondence between the actual parking needs of each new building, and the parking supplied by that building at the uniform 4 per 1,000 sq.ft. rate. However, buildings which provide surplus spaces will eventually make them available for rent to users of buildings with insufficient spaces, so that all spaces will be used.

A significant parking impact of the Project would result from the exemption of a small amount of new development from the parking requirement. Exemptions might be for small sites, or for vacant sites which have made payments into the Parking Assessment District, or for expansions due to statutory improvements. These exemptions could allow up to 20,000 square feet built by 1995. The second concept could allow exemptions from 250 to 500 square feet for all properties in the study area. The second concept would allow up to 50,000 square feet built without parking by 1995. Under a 50,000 square foot exemption, the parking deficit would increase by 154 spaces. Since either increase would be significant the Downtown Study Committee has recommended that the project include new public parking to accommodate the higher (154) of these two figures.

The Project proposes two new rules for the zoning ordinance. The first rule would allow off-site parking to be located anywhere provided that the Director of Planning and Community Environment is satisfied that the parking will be used by the new building. The second new rule would allow the parking requirement to be satisfied through an in-lieu payment to the Park-

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ing Assessment District rather than through actual on-site parking provision.

These rules were proposed because all sites are not equally suited for provision of parking as part of a development project. Sites less than 10,000 square feet in area generally cannot be developed with underground parking garages. Urban design and public safety considerations preclude access to parking in some locations, as illustrated by the present ARB guideline against new curb cuts within the Pedestrian district along University Avenue.

The in lieu provision is to be in force only at such times as there are designated surplus spaces in new public parking structures. The in lieu fee would be set at a level high enough to at least pay for the cost of the space in the public parking garage. Neither of these provisions will have an adverse environmental effect, provided that payment of an in lieu parking fee is never permitted in the absence of available public parking supply. There will be localized impacts resulting from the design and location of off-site parking, and these will be reviewed on a case by case basis.

The Project also includes a provision which would count any parking space at grade level or above as developed floor area in the density calculations for new buildings. This rule would encourage underground parking, in the interest of protecting the downtown visual environment yet still preserving

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the opportunity to provide on-site parking. The rule will result in fewer small development projects. A related impact of underground parking on drainage is addressed in Section L, Public Services and Utilities.

The "No Project" Alternative No.5 would return to the system of having no parking requirement for commercial uses. The "No Project" alternative is forecast to result in an additional 1,100,000 square feet of development by 1995. If an average of 3.1 spaces per 1,000 square feet of commercial floor area (the pipeline average) are needed, and if it is assumed that 40 percent of the needed spaces would be voluntarily supplied privately by new projects, then the Downtown parking deficit would be increased to 3,482 spaces. Unless a great many public parking garages are built, this alternative would result in unacceptable impact on the Downtown and its neighborhood streets.

d) **Parking Impacts of Other Proposals, 1995**

The project and the alternatives (except for No Project) propose several new parking programs and projects, in addition to the zoning proposals discussed above. These include:

Parking Strategy 1a. Build at least one additional (public) parking structure.

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Parking Strategy 1b. Consider a second structure for public parking that could include a food market and housing.

Parking Strategy 1c. Adopt an eight-point program to use existing public parking supply more effectively. (A summary of these eight points follows--a complete description is attached to this EIR):

- (1) Make the City lots and garage facilities more understandable by putting permit and public parking spaces in separate facilities.
- (2) Reduce time limits in public parking spaces from 2 to 1 hour in centrally located areas.
- (3) Offset the loss in 2-hour spaces resulting from point 2, above, by converting one of more of the larger parking facilities to attendant pay parking with 30 minutes free, then an accelerated rate schedule to encourage short-and medium-term use.
- (4) Sell more all day parking permits to reduce sleeper parking, in both lots and selected on-street spaces.
- (5) Expand and promote the carpool program to make it more attractive and easy to use.

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- (6) Convert publicly owned automobile parking to bicycle and motorcycle parking on a petition basis.
- (7) Promote employer participation in ridesharing, permit management, and non-auto travel.
- (8) Redesign selected lots to improve circulation and/or increase capacity.

Parking Strategy 1d. (Do not use the site of lots, S,L or F entirely for the development of public parking, but rather consider this site for mixed use with ground floor retail, including a food market if practical.)

Traffic Strategy 3c. Consider closure of Florence Street in conjunction with (development of) of the site of Lots S, L and F.

Neighborhood Protection Strategy 3d. (Regulate the placement of entrances to new parking facilities to promote amenity, safety, and reduce traffic on residential streets)

All of these programs and projects add parking or use existing parking resources more efficiently. As such, they are all mitigations to the existing parking deficit and to the potential increase in the deficit resulting from the exclusion of up to 50,000 square feet from the

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requirement to provide on-site parking by 1995. Since there may be localized impacts of new parking structures, separate environmental assessments will be required for any new parking structures.

In addition to the above policies, programs and projects which together comprise the Downtown study strategies pertaining to parking, three alternatives to the project were proposed:

Alternative 1.a.1 "Produce vacant lots and existing private parking lots for public parking." This alternative to building new parking supply would not result in any addition to the parking supply unless the lots were not already used for parking.

By way of example, one 10,000 square foot lot could provide 29 new parking spaces if not formerly used for parking. Approximately 5.3 such lots would be needed to create the 154 net new parking spaces needed to accommodate the parking impact of the project. With the exception of one such lot, on the NW corner of Hamilton and High Streets, no large (10,000 square feet or more) vacant lots exist in the study area which are not already used for parking.

This alternative, if pursued instead of the project proposal to build at least 154 spaces on City-owned sites, would result in the addition of only 29 new spaces on the corner of High and Hamilton, with a resulting unmitigated peak parking impact of 125 (154-29) spaces. The

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alternative could, however, be pursued in conjunction with the construction of new structure parking on City-owned sites.

Certainly the use of an existing vacant lot for public parking would be an attractive alternative to the construction of some 30 new spaces in an elevated structure.

Alternative 1.b.1 "Consider a second structure for parking only" (The same as 1.d.1 except that 1.d.1 identifies a particular site: Lots S, L, and F). The project proposes to "consider" an air rights project that could include a food market and housing. This alternative would preclude the development of housing or a food market in the proposed new second parking structure. Such limitation would reduce the possibility that a food market will ever be attracted to the Downtown, and might thereby also reduce the overall attractiveness of the core area for residential development.

Neither of these consequences would have predictable effects on the parking impacts of the project, but they could reduce the total traffic volumes and service level impacts identified in this report if the lack of a food store caused fewer than 750 new residential units to be built by 1995. The amount of this reduction cannot be estimated, since a food store may be attracted to the area regardless of whether the City includes one in an air rights project over parking.

3. Mitigationsa) Mitigations for Traffic Impacts

The Project itself is in large part an attempt to mitigate the traffic and parking impacts of continued growth under existing policies and regulations. The recommended growth strategies of this Project are intended to limit traffic generation by study area land uses for the next seven to ten years. Nevertheless, the upper limit of the Project growth strategy would permit increases in floor area, with resulting traffic impacts.

The upper limit of the Project would result in significant traffic impacts at four intersections, three of which would operate at "D/E" or worse levels of service during the PM Peak. These three are show below in Table 40.

Table 40
Intersections Adversely Impacted by the Project

INTERSECTION	1995 PM PEAK		
	NO GROWTH	WITH PROJECT	
		LOWER	UPPER
University at Middlefield	D	D/E	E
University at Guinda	C/D	C/D	D/E
Middlefield at Willow (1)	E/F	E/F	F

Notes: (1) Includes growth due to regional through traffic plus all approved projects identified in the Study area and Menlo Park.

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To mitigate the traffic impacts shown above, traffic engineering improvements are feasible and recommended. A description of these mitigations follows for each intersection.

University at Middlefield

The recommended mitigation for this intersection is to add a lane to the westbound approach for through traffic. This through lane is needed to clear long queues of vehicles which otherwise form on University eastbound during peaks, and would improve the level of service at this intersection to "C" or better.

Due to the 45' width of University east of the intersection, the additional westbound lane may be accomplished either by pavement widening on the University eastbound departure, or by prohibiting left turns westbound. If pavement widening is selected, the westbound approach would become an exclusive left, a through and a through-right lane. The needed pavement width would be best obtained on the eastbound curb, for at least 175' east of the intersection. Widening this portion of University entails right-of-way acquisition, relocation of the sidewalk, and loss of a number of mature magnolia trees. Alternatively, the needed improvement in level of service can be obtained by prohibiting left turns westbound on University at this intersection, and restriping the westbound approach as a through and a through-right lane. The left turn prohibition, although less costly and resulting in preservation of existing street trees, would shift

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the westbound left turning traffic to other intersections along University to the east, primarily Guinda, Hale and Lincoln. This shift of left turning traffic would adversely effect the University at Guinda intersection, which would operate at a "D/E" level of service with the project. In order to accommodate this possible adverse impact at Guinda, mitigations are recommended as follows:

University at Guinda

The recommended mitigation for this intersection is to post "No Parking--8 AM to 6 PM" signs for 140' back of the stop bar on the northbound Guinda approach and on the westbound University approach. Posting these approaches will ensure two-lane operation, thereby improving the level of service to an acceptable level of "D" ($V/C=0.83$). Approximately 10 parking spaces will be affected. These spaces are not heavily used during these daytime hours. This mitigation is recommended with or without the left turn prohibition at University and Middlefield.

Middlefield at Willow

Additional traffic attributable to the upper limit of the project would impact operations at the Middlefield/Willow intersection in the City of Menlo Park. Only two percent of the total 1995 PM peak approach volume forecast for this intersection is attributable to the upper limit of the project. The 1995 volumes used at this intersection include forecast

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volumes provided by the City of Menlo Park for approved pipeline projects within its jurisdiction.

Here the recommended mitigation is to restripe the westbound Willow approach from its current three lanes to four, consisting of a dual left, through, and right turn lanes. Existing pavement width in this approach is 47'2", allowing 10' left turns, 11' through, and a 16' free flowing right turn lane. This configuration would need to be accompanied by removing a small landscaped area on the northbound Middlefield approach to allow an exclusive right turn, and other minor revisions to allow simultaneous left turns from east and westbound approaches. With this configuration, the intersection would operate at a mitigated PM peak hour level of service of D/E. This service level would be a substantial improvement over the "E/F" condition forecast for the 1995 "no growth" scenario (See Table 40).

The level of service effect resulting from these traffic engineering mitigation measures at the three adversely impacted intersections are shown in Table 41, below.

Table 41
Effect of Proposed Mitigations
on Adversely Impacted Intersections

INTERSECTION	1995 PM PEAK LEVEL OF SERVICE		
	NO GROWTH	PROJECT -- UPPER LIMIT	
		WITHOUT MITIGATIONS	WITH MITIGATIONS
1. University at Middlefield	D	E	C
2. University at Guinda	C/D	D/E	D
3. Middlefield at Willow	D/E	F	D/E

VI.J. Transportation, Circulation and Parking

Apart from these recommended engineering measures, the project itself contains a number of measures which are in effect traffic mitigations, designed both to mitigate the traffic impacts of the project as well as to reduce traffic volumes due to regional through traffic and the study area pipeline. A list of these measures follows: (for more detail see the Project Description).

Traffic Strategy 1a. Reduce development potential. (This strategy is a mitigation for traffic generated by the "No Project" Alternative No.5)

Traffic Strategy 1b. Develop an incentive program to reduce drive-alone trips, placing more emphasis on express bus service to serve Downtown.

Traffic Strategy 1c. Maximize incentives for low traffic generating uses.

Traffic Strategy 2g. Discourage regional through traffic.

Traffic Strategy 3a. Adopt entire "Eight-point" public parking program. The traffic reduction points are as follows:

Point 1. Make the public vs. permit parking spaces more intelligible by putting the two types of parking spaces in separate facilities. This will make the search for parking simpler and thus reduce total vehicle travel generated.

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Point 2. Reduce the time limits to one hour for centrally located on and off-street parking spaces. This measure will make these spaces less attractive for all-day "sleeper" parking -- a practice currently used by an estimated 700 employees in the Downtown Study Area.

Point 3. Provide attendant parking at selected larger parking facilities. By accommodating medium-term and temporary all-day parking, vehicle travel due to "sleeper" parking will be reduced.

Point 4. Promote and expand the Downtown free rideshare permit program.

Point 5. Provide sheltered parking on City parking lots for bicycles and/or motorcycles, on a petition basis.

Point 6. Involve employers in promoting ridesharing and non-auto travel, as well as parking management.

Since the project described above does not include specific goals or target levels for these efforts, the amount of traffic reduction could not be estimated, and was therefore not included in the traffic forecasts. If implemented, the above strategies and programs will reduce the vehicle traffic forecast in this report as a result of growth in commercial floor area and number of housing units allowed by the proposed project.

VI.J. Transportation, Circulation and Parking

b) Mitigations for Parking Impacts

Section VI.J.2.C and VI.J.2.D list the various features of the project which have potential parking impacts. The cumulative parking impacts identified for the project are shown in some detail on Table 39, and can be summarized as a net reduction in the study area peak parking demand by 154 spaces. This is accomplished through the construction of one more public parking garages in the Downtown area in addition to the new public facilities recently completed on the sites of parking lots "Q" and "J". This garage or garages will provide a net new parking supply of at least 308 parking spaces. If the proposed facilities are larger, the beneficial impact will be larger. No mitigations for the parking impacts of the project are therefore necessary or recommended.

K. ECONOMIC AND FISCAL

1. Setting

The setting for the economic and fiscal analysis of this DEIR is the commercially zoned Primary Study Area. (Maps showing Study Area boundaries appear in the Introduction and Project Description.)

Downtown Palo Alto is a major commercial business district offering a wide range of retail, financial and business services to the local population and persons employed in the Downtown Area, and to industrial firms within the region.

2. Impacts

The findings of this section of the EIR were prepared by the economic consulting firm of Gruen Gruent Associates. A complete report containing these economic and fiscal findings was prepared by Gruen Gruen & Associates and is entitled, The Economic Effects of Proposed Growth, Land Use, and Parking Strategies on Retail Sales, Rents and the Bonding Capacity of Downtown Palo Alto (Appendix 5.)

The impacts discussed in this EIR are those relating to; (1) changes in Downtown Palo Alto retail sales; (2) changes in rents, particularly at ground floor locations, and (3) potential changes in the Downtown Parking Assessment

District bonding capacity that may result from the Downtown Study's Project proposals on growth (0-50,000 square feet annual growth limits for commercial projects and 15,000 square feet net/25,000 square feet gross for individual project size limits), the Project's proposed parking requirements for new development, the project proposal for an additional parking structure, and the Project proposal (with specifics defined in Section III.C.10) to limit ground floor uses to retail and retail-related uses (including personal services, eating and drinking establishments, travel agencies, hotels, cinemas and theaters) along the University Avenue retail core area. (See Map 3 for the proposed Ground Floor Retail Only Boundary.)

a) Growth Limits and Parking Requirements

The Gruen Gruen + Associates analysis found that if the project's 0-50,000 square feet growth limitation and parking requirement for development are imposed simultaneously, the costs of providing on-site parking alone will preclude new commercial development from occurring until rents increase sufficiently (over 30 percent) to make development feasible. While Alternative Growth Limits 2, 3 and 4 were not specifically discussed by the consultant, it is reasonable to assume that the findings on these alternatives would not vary substantially since the cost of on-site parking appears to be the underlying cause of this expected impact.

VI.K. Economic and Fiscal

Since demand for space will continue while available space remains limited, rents will likely increase. Total taxable sales will also increase, but much more slowly in the absence of new employment and available additional retail space contributing to increased retail sales. On the other hand, sales per square foot will continue to climb unless the economic health of Downtown is threatened in some manner.

Tenant mix of Downtown retail businesses will become increasingly specialized as demand for limited space increases.

The maximum project size limitations were found in the short run to help maintain a desirable "smaller scale feel." Long term impacts were termed difficult to predict.

b) Additional Parking Structure

The proposed parking structure described in the Project Description (Section III.C.9) should have positive effects on this long-term trend of retail sales. Ground floor rents will increase resulting from increased sales. The overall bonding capacity should benefit.

c) Ground Floor Retail Provision

The project requirement (described in Section III.C.10) that ground floors in a designated portion of the Downtown be limited to retail, personal

service and eating/drinking uses should encourage long-run trend of retail sales. By limiting competition for ground floor space, it may help reduce, though not eliminate, the shift of rent-sensitive neighborhood serving uses out of Downtown.

However, external forces (national economy, regional competition) could result in a slowdown in retail growth. Potential expansion of retail space may not occur because of owner fears that once a non-retail ground floor space goes to retail, it would be difficult to revert back to a non-retail use should vacancies occur.

Thus, in terms of economic and fiscal findings, it appears that the effects of the combination of the project's growth, retail, and parking strategies will keep Downtown economically viable, but not expanding. However, implementation of retail regulations could, in the future, threaten the ability of the retail base to respond to changing competitive conditions. As a result, these findings do not anticipate major physical changes within the Downtown commercial district.

3. Mitigation

Since the combination of these strategies will result in very little physical change to the Downtown commercial district, no mitigation appears necessary.

L. PUBLIC SERVICES AND UTILITIES

1. Setting

The City of Palo Alto is a full-service city, providing fire, police, parks, street maintenance, and other standard governmental services. Educational services are provided by the Palo Alto Unified School District. The City also provides utility services including electricity, gas, water, sewerage and sewage treatment, and solid waste collection, disposal and recycling.

2. Impacts

Relevant City departments were asked to respond to the effect the Downtown Study Strategies - particularly those relating to growth - on services and facilities in their respective areas of responsibilities. Responses to this inquiry are summarized below:

a) Fire Protection

From a fire protection point of view; a large number of new building projects produces more of an impact than the total floor area added by such projects. The number of projects impacts the Fire Department's ability to review plans, test and inspect fire protection systems and monitor special feature requirements.¹

VI.L. Public Services and Utilities

The land use strategies recommending incentives for housing in portions of the study area could also affect Fire Department services to some degree. Emergency medical responses increase when housing is concentrated, i.e. in higher density multi-family condominiums or apartments.²

b) Police Protection

The amount of new development allowed by the Project growth strategies will likely affect the need for police services to some degree. Typical impacts on police services of such growth and development usually include increases in the number of calls for service, additional traffic and traffic accidents, and increases in parking enforcement needs.³

c) Electric Utility

In terms of electric utility plant capacity needed to meet the demand of the Project's and Alternative growth limits, the City Utilities Department believes that the substation presently providing service to Downtown Palo should be able to handle the local growth resulting from the Project's low range (0 annual growth) and from Alternative 2 (17,500 s.f. annual growth). However, if the Project's high range (50,000 s.f. annual growth) or Alternative 3 (70,000 s.f. annual growth) or 4 (Reduced FAR) are ultimately adopted, then a study will have to be undertaken to determine what modifications and expansions may be necessary at the substation and in the new underground distribution system.⁴

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Palo Alto has a contract through 2004 to purchase 175 MW from the Western Area Power Administration (Western). As the demand for electricity in Palo Alto continues to grow, the Western power allocation will be exceeded more often and the amount of supplemental power requirements will increase correspondingly. Supplemental power, or "partial requirements" power is purchased from PG&E through NCPA at costs which are higher than those provided under the Western contract. Thus, when reviewing the expected effects of the Downtown Study's Project and alternative growth proposals on the City's need to buy supplemental power, the "0" annual growth limit would have a minimal adverse effect while growth expected under Alternative 5 (No Project Alternative) would have the greatest effect. Electricity demand from the Project's 50,000 s.f. annual growth limit and from Alternatives 2, 3, and 4 would fall mid-range in contributing to the the amount of supplemental power needed by the City.

d) Sanitary Sewers

The sanitary sewer system serving the Primary Study Area may be overtaxed at the present time.⁵ Thus, the Project and all alternative growth scenarios could require significant sanitary sewer augmentation.

e) Sewage Treatment Plant

Palo Alto's allotted capacity in the Regional Water Quality Control Plant is 12.7 Million Gallons Per Day Average Day Weather Flow (MGD/ADWF) and

will increase to 14.5 MGD/ADWF at completion of a programmed plant capacity expansion in 1988.⁶ Current wastewater flow is approximately 11.75 MGD/ADWF and, based on growth projections of the Comprehensive Plan, is projected to be 12.1 MGD/ADWF in 1987.

The Project, both upper and lower limits, would allow considerably less growth in commercial floor area than current zoning and the Comprehensive Plan would allow. Therefore it appears that the project will not cause Palo Alto to exceed its allotted capacity in the Regional Water Quality Control Plant.⁷

f) Storm Sewers

As described in the section on drainage above [Section VI.D], the storm sewer system serving the Primary Study Area is currently significantly undersized and that serving the peripheral study area is also undersized.⁸ The Project is not expected to change storm water runoff characteristics, but if deep underground garages are encouraged or permitted, increased pumping of sub-soil water could impact the storm sewer system. Drainage system improvements programmed in the 1988 CIP are expected to cost one million dollars and longer range improvements planned for Forest, and Lincoln Avenue trunk sewers may cost 3.5 million dollars. Increased capacity to dispose of pumped sub-soil water from subterranean garages, if allowed, could cost as much as ten million dollars.⁹

g) Solid Waste Disposal

Palo Alto's 146 acre Refuse Disposal Area currently receives approximately 270 tons of waste per day, 70 percent of which is from the commercial/industrial section.¹⁰ The Refuse Disposal Area is scheduled to reach capacity and close in 1999 and although alternate disposal sites are under investigation there is currently no long term disposal capacity available to Palo Alto.

The refuse likely to be generated by the Project and alternatives is estimated in Table 42. The Project growth scenarios would be expected to contribute between 2.5 and 3.5 additional days' worth of solid waste. Depending on how rapidly the commercial and residential components of the growth scenarios are actually built and occupied, the time at which the existing Refuse Disposal Area reaches capacity, and must be closed would be hastened by the project.

h) Water Utility

The water distribution system serving the Primary Study Area will require close study to determine whether the system is adequate to serve the demand likely to be generated by the Project and Alternatives. Shortfalls of system capacity could affect the availability of adequate water supplies for fire protection as well for commercial and residential domestic, irrigation and other water uses in the Primary Study Area.¹¹ It is

Table 42

Solid Waste Disposal Impacts of Downtown Growth Scenarios

SCENARIO	TONS OF REFUSE/YEAR		TOTAL	REFUSE DISPOSAL CAPACITY DAYS PER YEAR(c)
	COMMERCIAL(a)	RESIDENTIAL(b)		
1A. Project - Low Range	14	671	685	2.5
1B. Project - High Range	266	671	937	3.5
2. Alternative: 17,500 Sq.Ft./Yr	141	671	812	3.0
3. Alternative: 70,000 Sq.Ft./Yr	367	671	1,038	3.8
4. Alternative: Reduced FAR(d)	266	671	937	3.5
5. "No Project" Alternative - Recent Experience (1981-1984)	791	671	1,462	5.4

Source:

Dana Armstrong, Palo Alto Department of Public Works - Recycling, "Downtown Study - Impact of Different on Solid Waste Management." September 18, 1985.

Notes:

- Assumes waste generation rates varying between 1.5 and 2.31/pounds/employee/day for different projected use categories.
- Assumes 2.2 people per household and a waste generation rate of 2.23/pounds/capital/day. Residential component includes 750 projected housing units, 500 of which are expected to developed in the Primary Study Area.
- Annual total of each scenario compared to City's current total daily waste disposition (270 tons/day).
- Solid waste demand for Alternative 4 assumed to be same as for Project 1B+High Range.

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expected that the Water-Gas-Sewer Division will develop projections for water demand in the Study Area, but in general impacts are likely to be proportional to the amount of growth allowed, with the Project low range having the least impact and the No Project Alternative having the greatest impact.

In general it appears that the growth, allowed by the project and all of the alternatives considered will cause some increased demand on City services and facilities. However, in only a few of the service areas examined - sanitary sewers, electric distribution and storm sewers, - does it appear that the project will or may cause a threshold of system capacity to be exceeded.

The sanitary sewers serving the Primary Study Area may be "overtaxed at the present time."¹² Presumably any growth in commercial floor area or housing units in the Primary Study Area will increase sewage flows and further exacerbate this situation. The electric utility substation serving the Primary Study Area apparently still has reserve capacity, but if the project upper limit is adopted, then a study will have to be undertaken to determine what modifications and expansions would be necessary at the substation.¹³

The storm sewer system, presently undersized for existing runoff flows, could be further impacted if Project parking regulations caused the

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construction of underground garages deeper than two levels. Although considered primarily a drainage system impact in this EIR (see Section VI.D), the work load of responsible City departments could also be affected.

3. Mitigation

The project growth limits can be considered mitigations of most of the service and utility system impacts identified in that the Project low range allows less growth than any of the other alternatives examined and the Project high range allows less growth than all but one alternative considered. In addition, specific mitigations have been identified for some of the specific service systems discussed.

Potential impacts of the project's parking strategies can be mitigated by regulating subterranean parking construction. This mitigation is discussed in Section VI.D above concerning drainage system impacts.

Potential impacts of the project growth strategies on the City's Refuse Disposal Area could be mitigated by extending the City's waste reduction and recycling programs to development in the Study Area.¹⁴

This could include: (1) extending the City's existing Curbside Recycling Program to new housing units in the Study Area; (2) encouraging new and existing business to develop waste reduction and recycling programs (City

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Department of Public Works staff are available to assist businesses in the effort); and (3) requiring storage space for recycling bins in the design of new buildings in the Study Area.

Increased consumption of utility services will require study and perhaps improvement of City utility distribution facilities. A policy stating that costs incurred from distribution system improvements should be assumed by users will help to mitigate potential Project impacts on the City utility system. No further mitigations are necessary for utility services or for police and fire protection.

FOOTNOTES

1. Robert Wall (City of Palo Alto, Fire Department, Fire Chief), "Response to Downtown Study Strategies," Memo to Planning Department, August 26, 1985.
2. Ibid.
3. Bruce Cumming (City of Palo Alto, Police Department, Field Services Coordinator), "Downtown Study Strategies - Impact on City Services." Memo to Planning Department, September 6, 1985.
4. Larry Starr (City of Palo Alto, Utilities Department, Electric Utility Division, Chief Electrical Engineer).
5. Douglas Pursell (City of Palo Alto, Utilities Department, Water-Gas-Sewer Division, Chief Engineer). "Downtown (EIR) Study." Memo to Planning Department, September 23, 1985.
6. Ash Chapman (City of Palo Alto, Utilities Department, Water Quality Control Plant, Principal Engineer), "Downtown Study Strategies Impact on Water Quality Control Plant." Memo to Planning Department, August 30, 1985.
7. Ibid.
8. Harrington, op. cit.
9. Ibid.
10. Dana Armstrong (City of Palo Alto, Department of Public Works - Recycling, Program Assistant), "Downtown Study - Impact of Different Scenarios on Solid Waste Management." Memo to Planning Department, September 18, 1985.
11. Darren Kipper (City of Palo Alto, Utilities Department, Water-Gas-Sewer Division, Assistant Engineer), "Downtown Study Strategies-Impact on City Services." Memo to Planning Department, October 16, 1985, and Douglas Pursell, Comments on Downtown Study EIR Draft, November 18, 1985.
12. Pursell, op. cit.
13. Starr, op. cit.
14. Armstrong, op. cit.

M. VISUAL AND HISTORIC

1. Visual Effects

a) Impacts

Many of the recommendations of the Downtown Study will influence the appearance of the study area. In order to assess these effects, the Architectural Review Board, (ARB) was asked to review the proposals of the Downtown Study Committee. The following discussion is drawn primarily from the comments of the ARB.

The major thrust of the Downtown Study project and all of the alternatives (except the No Project Alternative) is to control the amount of development rather than the quality of what is constructed. Controlling the amount of development will not directly impact the visual environment, but will have several secondary effects. The project and Alternatives 2 and 3 control and slow the rate of development, while Alternative 4 greatly reduces the build out potential of the zoning. These changes mean that less new square footage will be built than is likely to occur under current regulations. Less development equates to less visual change, and this may be viewed as positive or negative depending upon the tastes of the observer. With less total development occurring, there will be less private sector capital to be spent on visual enhancements to the Downtown, such as public plazas, upgrading of alleys, and similar improvements which

might be produced as part of a development project. At the same time, the limitations on new square footage will make the existing building square footage more valuable, with the prospect that there could be increased reason for owners to upgrade the appearance of what has already been built. The prospects for substantial rehabilitation of older buildings will, however, be lowered if the building owners can not add square footage to help pay for building improvements. Several ARB members stated that the proposal to limit the total amount of development to 70,000 square feet per year or lower could be adverse on the appearance of the area due to the lowering of opportunities for change and renewal.

The project and Alternatives 2 and 3 establish direct controls on the sizes of new building projects, allowing no more than either 25,000 square feet or a net gain of 15,000 square feet above the development already on a site, which ever is greater (in addition, projects may not exceed the floor area ratio). The ARB generally favored these size limitations as assuring that new projects will be of a size which is compatible with the predominant scale of existing buildings in the CC zone. While the ARB members generally approved of the scale effects of the size limitations, there was a difference of opinion on how these controls would effect the quality of the buildings themselves. Some board members felt that developers would be inclined to build cheap buildings in the belief that the rules on development will be relaxed in the future and that any new

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project would be an interim use of the site. Other members of the Board argued that the smaller project size would lead builders to reason that with limited size buildings they should build to the highest quality to attract maximum rents on the limited square footage which can be constructed.

Members of the ARB believed that the proposals to limit building sizes near residential areas (common to the project and all alternatives other than Alternative 5, No Project) would be favorable in terms of enhancing the design relationship between commercial and residential districts. It was, however, suggested that the zoning and guidelines to be developed should vary according to the type and density of the residential zones which abut the commercial districts.

The Downtown Study Committee proposed zoning rules that would count structural parking at/or above grade level as floor area. This concept would force enclosed parking underground and would create visually smaller buildings. If this concept is also applied to public parking garages, it would greatly reduce the City's capacity to build new parking supply.

The ARB was generally critical of the project and of all the alternatives for not including sufficient programs to address the goals which had been established to encourage variety and to foster pedestrian oriented surroundings. The Project and the alternatives do not create incentives for provision of desired types of buildings and public amenities. The

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ARB found the Study proposals notably absent in suggesting ways to create attractive public spaces or to upgrade the visual environment.

From the comments of the ARB, it is concluded that the project and the alternatives will have the visual effect of creating a different appearance of the Downtown in the future than it would be if current policies are left in place. There is no consensus from the ARB members as to whether the effects will be positive or negative, but a general judgment that the project size limitations and neighborhood protection measures are likely to be beneficial. The annual growth limitations in the absence of positive programs to create the desired visual environment may be detrimental from a visual perspective. None of these effects would be of environmental significance in the terms addressed by the environmental quality act.

b) Mitigations

While none of the visual impacts of the project and alternatives is environmentally adverse, the criticism that the proposals are not creative in outlook could be addressed through City initiation of an urban design plan for the Downtown. The potential benefits of such a plan are already under study, and a report on the experience of other cities with such plans is being prepared for the City Council.

2. Historic Resources

a) Project Setting

With the exception of the No Project Alternative (Alternative 5), the project and all alternatives include the recommendation to examine the following set of programs to foster the preservation of historic structures:

Explore the following mechanisms, consistent with other recommended growth strategies, to preserve buildings of historic and architectural interest:

- a. Direct the Historic Resources Board to establish a Downtown overlay zone for buildings of significant structural interest that contribute to the character of Downtown Palo Alto;
- b. Apply the following proposals to all building sites included with the "significant structure" overlay zone:
 1. Adopt an ordinance prohibiting demolition of such structures;
 2. Adopt an ordinance requiring adequate maintenance of such structure;
 3. Establish a density transfer program; and

4. Determine feasibility of a revenue bond program for structural rehabilitation and maintenance at below market rate financing.

c. Permit density transfer receiver sites to:

1. Be located anywhere within Downtown commercially-zoned districts, except in: (a) sites in the significant structure overlay zone; and (b) sites within a 150-foot band of adjacent residentially zone properties;
2. Develop an additional 1.0 to 1.0 FAR above the maximum otherwise permitted under the proposed growth strategies (i.e., in CC 2.0 to 1.0 and in CS 1.0 to 1.0); and
3. Have project applications placed at the beginning of the line in the annual growth allocation.

Historic sites are listed in the Palo Alto Historic Inventory, and are designated by the City Council upon the recommendation of the Historic Resources Board. The present inventory lists historic sites in four categories. Category 1 consists of (Exceptional) -- buildings or group of buildings of pre-eminent national or state importance, as meritorious works of the best architects or outstanding examples of a specific architectural style or illustrating stylistic development of architecture in the United States. Buildings with no exterior modifications, or with

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such minor ones that the appearance of the building is entirely in its original character.

Category 2 includes (Major) -- buildings or groups of buildings of major regional importance, as meritorious works of the best architects or outstanding examples of an architectural style or illustrating stylistic development of architecture in the State or region. Buildings with some exterior modifications but where the original character is retained. Modifications are inappropriate but not irreversible.

Category 3 & 4 sites are (Contributing) -- buildings or groups of buildings which are good local examples of architectural styles and which related to the character of a neighborhood grouping in scale, materials, proportion, and other factors. Extensive or permanent changes have been made to the original design. Inappropriate additions, extensive removal of architectural details, and resurfacing wooden facades in asbestos or stucco are examples.

There are fifty six sites on the historic inventory within the study area, twenty of which are in Categories 1 and 2. By zoning district, forty seven of the sites are in the CC district, six in the CS district, and three are zoned PF. There is also a designated historic district on Ramona Street. One of the recommendations of the project is that the Historic Resources Board develop a new "significant structure overlay" zone and develop a list of properties to be included in this new zone. It

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is assumed that all or most of the historic sites will be included, and that some additional structures not now designated as historic might be added. There might be two classes of buildings in the significant structures overlay: those that are individually significant, and those that contribute to the historic setting. Regulations would be developed to require maintenance of all structures in the overlay and to prevent demolition of the most significant structures. In addition, all remodelings of structures in the significant structures overlay should receive historic design review as part of future design approvals.

Accompanying the significant structures overlay would be a financial incentive program to provide loans to owners of historic properties and to encourage preservation of the structures. The loan program could be funded as an assessment district, or could be a revolving loan fund capitalized by the City. Another form of financial incentive is the proposed density transfer program, which would allow owners of historic properties to transfer unused density to other sites. The amount of density that can be transferred is to be limited in two ways. Density will only be transferable when the existing historic building is smaller than the allowable floor area ratio, and only the difference between the present building size and the FAR can be transferred. On the receiving site the greatest amount of density increase is to be a floor area ratio of 1.0. The Historic Resources Board has reviewed formal density transfer ordinances as well as use of the Planned Community (PC) zone as vehicles for accomplishing the transfer. It is recommended that the City initially

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use the PC process and that a Comprehensive Plan policy authorizing such P.C. zones be adopted.

b) Impacts

The significant structures overlay and the programs that would be applied within the overlay are aimed directed at preservation of historic resources, and would have little effect on the amount of development in the Downtown. There would be no change to the annual growth limitations of the project or Alternatives 2 and 3. One component of the significant structures overlay would be a density transfer process which would shift the location of development among properties and could allow larger projects on a given property than would be possible without density transfer. There could be local effects on circulation or aesthetics as a result of more massive projects. Because the amount of development in the Downtown is not altered, there would be no overall increase in building potential as a result of density transfer. Other effects of the historic preservation proposals would tend to reduce the potential for the deterioration and demolition of historic buildings, and would be environmentally positive.

The annual growth limitation included in the project and Alternatives 2 and 3 would have effects that could be both positive and negative on historic buildings. The annual allocation of development will result in fewer new construction projects and therefore less pressure to demolish

all existing buildings. At the same time, there may be an effect of promoting rehabilitation of existing structures. These effects would be positive for historic sites. On the negative side, the annual growth controls do not apply to projects which are replacing existing buildings, and there is a possibility that historic buildings could be lost through replacement. This possibility also exists under present zoning, but the incentive to rebuild is not as great as it would be under tight growth controls. The low range of the project would not allow new buildings to be constructed at all unless they replace old buildings. These possible adverse effects would be negated by the proposed prohibition on demolition of significant structures, which is also part of the project proposal.

c) **Mitigations**

The following mechanisms would prevent adverse effects on historic resources.

1. Adopt the significant structures overlay and related regulations, which would include prohibiting the demolition of significant structures, that are being developed by the Historic Resources Board.
2. If an annual growth allocation process is selected, include a project selection system which creates an incentive for projects which include the preservation or rehabilitation of historic buildings.

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3. Adopt a Comprehensive Plan Policy allowing density transfer through the Planned Community zone.
4. Direct staff to work with the Historic Resources Board and Architectural Review Board to develop design guidelines to protect historic structures and the setting of the historic structures.

SECTION VII

SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

The Project and the alternatives will result in significant adverse impacts on air quality in the Study Area.

AIR QUALITY

The air quality analysis shows that under worst case conditions in 1995, the Federal and State 8-hour average carbon monoxide (CO) air quality standard would be exceeded at the University/E1 Camino-Alma and the E1 Camino/Alma intersections. This significant cumulative CO air quality problem is most likely the result of regional and Citywide generated traffic as well as traffic generated from the Project or the alternatives. Palo Alto can support enforcement of the State's motor vehicle emission standards and participate in regional transit proposals. In addition, this EIR suggests a possible set of mitigation measures (existing programs, Project mitigations and other potential measures) for City consideration. However, it is not possible to determine whether these measures would fully mitigate the predicted impacts.

SECTION VIII

SHORT TERM USES OF THE ENVIRONMENT VERSUS LONG TERM PRODUCTIVITY

Increased development, additional employees, new residents and traffic levels will increase demand for and use of natural resources such as energy and construction materials.

The Study Area is already developed with commercial and residential uses, therefore, the Project or alternatives should not have an adverse impact on potential future use of the area.

The Project and alternatives, except Alternative 5 (No Project) could reduce potential commercial productivity in the area by reducing development size, but at the same time, will help to maintain area air quality and circulation by reducing the potential number of employees and related traffic impacts.

SECTION IX
SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

The Project or the growth reduction alternatives will not impact non-renewable resources.

SECTION X

GROWTH INDUCING IMPACTS

Much of the development projected under the Project and the alternatives would be in commercial uses which will generate increased employment. Approval of the Project could result in a range of 50,000 to 400,000 square feet of additional development as well as additional employees in the study area. Approval of one of the reduced growth alternatives could result in a low of 225,000 square feet of development and a high of 540,000 additional square feet of development, depending on which alternative is selected. In addition, 750 new housing units are expected in the Study Area. Short term jobs would be created by the development design and construction process. Long terms jobs would be created by the uses occupying the new developments.

The increase in employees will result in a chain reaction of demand for housing and foster development of secondary services such as smaller support businesses and restaurants. The expansion in floor area will increase demand for City services and may require modification of the City's storm drain system (new lines) and electric gas and water distribution systems. Provision of such expanded capacities by initial development could make further additions more feasible or economical.

SECTION XI
ORGANIZATIONS/INDIVIDUALS CONSULTED

Public Works Department:	James Harrington, Supervising Engineer; Dana Armstrong, Program Assistant-Recycling
Utilities Department:	Ash Chapman, Principal Engineer--Water Quality Control Plant; Larry Starr, Chief Electrical Engineer; Herb Hunt, Supervising Engineer; Doug Pursell, Chief Engineer WGS
Energy Conservation:	Richard McClure, Solar Coordinator
Attorney's Office:	Sandy Sloan, Senior Assistant City Attorney
Metropolitan Transportation Commission	Jeff Georgevich, Environmental Review Officer
Association of Bay Area Governments	Sally Germain Clearinghouse Coordinator
Bay Area Quality Maintenance District	Patricia Perry, Regional Planner III
Caltrans	Thomas Perardi, Research and Planning Manager Irwin Mussen, Planner Jean Roggenkamp, Planner
Santa Clara County Transportation Agency	Bob Crockett, Associate Transportation Engineer
San Mateo County Planning Department	Jerri Wionowski, Senior Transit Development Specialist James Lightbody, Service Development Manager
Stanford University	Ernie Vovakis, Planner III
City of Menlo Park	Julia Freeman Research Analyst Community Relations
City of East Palo Alto	Leon Pirofalo, Director of Community Development Loren Mercer, Traffic Engineer Sujath Syed, Assistant Traffic Engineer
City of Mountain View	Don Provost, Community Development Director
	Mike Percy Housing Coordinator

SECTION XII
PREPARERS OF THIS DOCUMENT

This EIR has been prepared by the City of Palo Alto Department of Planning and Community Environment.

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SECTION XIII
APPENDICES

- A-1 Downtown Study Committee Members
- A-2 Initial Study
- A-3 Notice of Preparation and Referral List
- A-4 Responses to Notice of Preparation
- A-5 Economic Effects of Proposed: Growth, Land Use, and
 Parking Strategies on Retail Sales, Rents and the
 Bonding Capacity of Downtown Palo Alto
- A-6 Air Quality Methodology

APPENDIX A-1

DOWNTOWN STUDY COMMITTEE MEMBERS: 16 MEMBERS

Downtown:

1. Hal Hudson (Senior Coordinating Council)
2. Dave Jury (Downtown Property Owner)
3. Roxy Rapp (Downtown Merchant and Property Owner)
4. Carl Schmitt (Downtown Businessman)
5. Jeri Stewart (Downtown Merchant)

Nearby Neighborhoods:

1. Joe Huber
2. Pam Marsh

City-Wide:

1. Ed Arnold - Chairman
2. Sam Sparck - Vice Chairman

Planning Commission:

1. Ellen Christensen
2. Pat Cullen
3. Joe Hirsch
4. Jean McCown
5. Lanie Wheeler

Architectural Review Board:

Tony Carrasco

Historic Resources Board:

Elizabeth Kittas

APPENDIX A-2

INITIAL STUDY

Environmental Documents - City of Palo Alto

ENVIRONMENTAL ASSESSMENTProject Description/Title: Downtown Study, Strategy PhaseLocation/Address: Downtown Palo AltoSponsoring Agency/Applicant: City of Palo AltoAddress and Telephone of Applicant: 250 Hamilton Avenue, 329-2441Application For: Recommended zone changes in the Downtown Study Area
(e.g., zoning change, subdivision of property, architectural review, use permit)Zoning at Project Location: CC Fee Receipt No.: _____

The project is an emergency project, ministerial project, under CEQA guidelines and procedures adopted by the City of Palo Alto, and therefore is exempt from environmental assessment.

The project qualifies for a Categorical Exemption (Class) under CEQA Guidelines and procedures adopted by the City of Palo Alto, and no further environmental assessment is necessary.

City Official: _____ Department: _____ Date: _____

NOTICE OF DETERMINATION

Based upon the information of the environmental worksheets, the undersigned member of the Planning Department has made an initial study of the project and has concluded:

Negative Declaration: The project has no significant environmental impact. No Environmental Impact Report is required. The reasons for a Negative Declaration are: _____

XX The project may have a significant environmental impact. An Environmental Impact Report will be prepared.

Planning Department Official: _____

Planning Director: Bruce Freeland Date: 4/30/85

The project has been approved. Date: _____

The project has been denied. Date: _____

INITIAL STUDY^{1, 2}

I. Project Title/Address: Downtown Study, Strategy Phase
Downtown Palo Alto (see attached map)

II. Project Description: See attached description.

III. Environmental Setting: The downtown commercial center of the city of Palo Alto, surrounded on 3 sides by residential areas and by the railroad and public facilities on the 4th sides.

IV. Environmental Impact Checklist (Explanation of all "yes" answers are in Section V)

1. <u>Earth.</u> Will the proposal result in:	<u>YES</u>	<u>MAYBE</u>	<u>NO</u>
a. Unstable earth conditions or changes in geologic substructures?	—	—	X
b. Disruptions, displacements, compaction or overcovering of the soil?	X	—	—
c. Change in topography or ground surface relief features?	—	—	X
d. The destruction, covering or modification of any unique geologic or physical features?	—	—	X
e. Any increase in wind or water erosion of soils, either on or off the site?	—	—	X
f. Exposure of people or property to geologic hazards such as earthquakes, landslides, mudslides, ground failure, or similar hazards?	X	—	—
g. Changes in siltation, deposition, or erosion which may modify the channel of a river or the bed of a bay or inlet?	—	—	X

¹ Adapted from Appendix I, California Guidelines for Implementation of CEQA, December 14, 1976.

² Updated May, 1982; June, 1983

	<u>YES</u>	<u>MAYBE</u>	<u>NO</u>
2. <u>Air.</u> Will the proposal result in:			
a. Substantial air emissions or deterioration of ambient air quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. The creation of objectionable odors?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Alteration of air movement, moisture or temperature, or any change in climate, either locally or regionally?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. <u>Water.</u> Will the proposal result in:			
a. Changes in absorption rates, drainage patterns, or the rate and amount of surface water runoff?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Alterations to the course or flow of flood waters?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Discharge into surface waters, or in any alteration of surface water quality, including but not limited to temperature, dissolved oxygen or turbidity?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Alteration of the direction or rate of flow of ground waters?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Exposure of people or property to water related hazards such as flooding or tidal waves?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Change in the quantity of ground waters, either through direct additions or withdrawals, or through interceptions of an aquifer by cuts or excavations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. <u>Plant Life.</u> Will the proposal result in:			
a. Change in the diversity of species, or number of any species of plants (including trees, shrubs, grass, crops, microflora and aquatic plants)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Reduction of the numbers of any unique, rare or endangered species of plants?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Introduction of new species of plants into an area, or in a barrier to the normal replenishment of existing species?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Reduction in acreage of any agricultural crop?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

5. <u>Animal Life.</u> Will the proposal result in:	<u>YES</u>	<u>MAYBE</u>	<u>NO</u>
a. Change in the diversity of species, or numbers of any species of animals (birds, land animals including reptiles, fish and shellfish, benthic organisms, insects or microfauna)?	—	—	X
b. Reduction of the numbers of any unique, rare or endangered species of animals?	—	—	X
c. Introduction of new species of animals into an area, or result in a barrier to the migration or movement of animals?	—	—	X
d. Deterioration in existing fish or wildlife habitat?	—	—	X
6. <u>Noise.</u> Will the proposal result in:			
a. Increases in existing noise levels?	X	—	—
b. Exposure of people to severe noise levels?	—	—	X
7. <u>Light and Glare.</u> Will the proposal produce new light glare?	X	—	—
8. <u>Land Use.</u> Will the proposal result in a substantial alteration of the present or planned land use of an area?	X	—	—
9. <u>Energy/Natural Resources.</u> Will the proposal result in:			
a. Use of substantial amounts of fuel or energy?	—	X	—
b. Substantial increase in demand upon existing sources of energy, or require the development of new sources of energy?	—	—	X
c. Increase in the rate of use of any natural resources?	—	—	X
d. Substantial depletion of any nonrenewable natural resource?	—	—	X
10. <u>Risk of Upset.</u> Does the proposal involve a risk of an explosion or the release of hazardous substances (including, but not limited to, oil, pesticides, chemicals or radiation) in the event of an accident or upset conditions?	—	—	X

		YES	MAYBE	NO
11. <u>Population/Housing.</u>				
a. Will the proposal alter the location, distribution, density, or growth rate of the human population of an area?		X	—	—
b. Will the proposal affect existing housing, or create a demand for additional housing?		X	—	—
12. <u>Transportation/Circulation.</u> Will the proposal result in:				
a. Generation of substantial additional vehicular movement?		X	—	—
b. Effects on existing parking facilities, or demand for new parking?		X	—	—
c. Alterations to present patterns of circulation or movement of people and/or goods?		X	—	—
d. Increase in traffic hazards to motor vehicles, bicyclists or pedestrians?		—	—	X
13. <u>Public Services.</u> Will the proposal have an effect upon, or result in a need for new or altered governmental services in any of the following areas:				
a. Fire protection?		—	—	X
b. Police protection?		—	—	X
c. Schools?		—	—	X
d. Parks or other recreational facilities?		—	—	X
e. Maintenance of public facilities, including roads?		—	—	X
f. Other governmental services?		—	—	X
14. <u>Utilities.</u> Will the proposal result in a need for new systems, or substantial alterations to the following utilities:				
a. Power or natural gas?		—	—	X
b. Communications systems?		—	—	X

	<u>YES</u>	<u>MAYBE</u>	<u>NO</u>
c. Water?	—	—	X
d. Sewer or septic tanks?	—	—	X
e. Storm water drainage?	—	—	X
f. Solid waste and disposal?	—	—	X
15. <u>Human Health.</u> Will the proposal result in:			
a. Creation of any health hazard or potential health hazard (excluding mental health)?	—	—	X
b. Exposure of people to potential health hazards?	—	—	X
16. <u>Aesthetics.</u> Will the proposal result in the obstruction of any scenic vista or view open to the public, or will the proposal result in the creation of an aesthetically offensive site open to public view?	—	—	X
17. <u>Recreation.</u> Will the proposal result in an impact upon the quality or quantity of existing recreational opportunities?	—	—	X
18. <u>Cultural Resources.</u>			
a. Will the proposal result in the alteration of or the destruction of a prehistoric or historic archaeological site?	—	—	X
b. Will the proposal result in adverse physical or aesthetic effects to a prehistoric or historic building, structure, or object?	—	—	X
c. Does the proposal have the potential to cause a physical change which would affect unique cultural values?	—	—	X
d. Will the proposal restrict existing religious or sacred uses within the potential impact area?	—	—	X

19. <u>Mandatory Findings of Significance.</u>	YES	MAYBE	NO
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	—	—	X
b. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals. (A short-term impact on the environment is one which occurs in a relatively brief, definitive period of time while long-term impacts will endure well into the future.)	—	—	X
c. Does the project have impacts which are individually limited, but cumulatively considerable? (A project may impact on two or more separate resources where the impact on each resource is relatively small, but where the effect of the total of those impacts on the environment is significant.)	—	X	—
d. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	—	—	X

V. Explanation of "yes" answers in environmental checklist.

See attached.

II. PROJECT DESCRIPTION

The project is the second phase of a three phase study which will eventually lead to revised zoning and new parking programs. The second phase, which is now being reviewed, recommends the major strategies by which development in the Downtown area will be controlled in the next five years. The strategies consist of concepts, ranging from general to specific in their level of detail. No ordinances are being presented for adoption during this phase of the study, and no public programs are being initiated at this time. The final phase of the study will be the adoption of new policies and ordinances, and will initiate new public programs. There will be additional environmental review at the time that these programs, policies, and ordinances are presented for approval.

The major components of the recommended strategies for the Downtown are:

1. An annual limitation of 70,000 net new square feet of commercial development per year for five years.
2. Size limitations on new commercial projects of either 25,000 square feet per site, or 15,000 net additional square feet per site.
3. Reduced Floor Area Ratios (FAR) for commercial developments set at 2.0 to 1.0 FAR in the Community Commercial (CC) zone and 1.0 to 1.0 FAR in the Service Commercial (CS) zone.
4. As yet unspecified incentives for housing in commercial zones.
5. Designation of certain land now commercially zoned to a multiple family residential zone.
6. Changes in zoning for selected parcels from one commercial zone to another.
7. Permanent retention of the now temporary limitation in CS zone that no more than 5,000 square feet of office use may occur on a site.
8. A limitation on ground floor usages along University Avenue and parts of its side streets to retail, personal services, and eating and drinking uses.
9. Establish special controls on commercial developments located within 150 feet of residential zones to limit their height, control materials and design, and other limitations intended to achieve a transition between commercial and residential uses.
10. Development of at least one additional public parking garage, and consider an air rights project to increase public parking while also providing a market and/or housing.

11. Require net development within the parking assessment district to provide 100 per cent of the parking spaces needed by the development, and base the parking requirement on a unified rate of one parking space per 250 square feet of building. Allow limited exceptions to this requirement for small sites and upgrades to provide for the handicapped.
12. Allow off-site parking to satisfy parking requirements and create some public parking spaces which can be paid for by developers to satisfy the parking requirement.
13. Make selected improvements to the circulation system which will improve the flow of traffic, including signal timing, preferential routing of traffic to Hamilton and Lytton, and possible future conversion of Emerson to a one way street.
14. On Middlefield and Alma, do not install new signals north of Lytton or south of Channing, and do not make major changes to streets of the types which would attract substantial additional traffic.

For a complete listing of strategy recommendations, see the report of the Downtown Study Committee to the Planning Commission.

IV. EXPLANATION OF "YES" OR "MAYBE" ANSWERS ON THE CHECKLISTS

1. Earth (b, f)

With few exceptions, properties in Downtown Palo Alto are already paved or overcovered with buildings, and the proposed strategies should result in negligible additional soil covering. The proposed strategy to require parking to be provided by new developments and the recommendation to build at least one additional public parking structure will result in additional excavation for underground parking garages. This excavation will not be environmentally significant.

Properties located within the boundaries of the Downtown Study are in a seismic area of moderate risk and are subject to very strong ground shaking and generally low potential ground failure due to liquefaction in the event of an earthquake. All new construction will be subject to the requirements of 1979 or other current Uniform Building Code, portions of which are directed at reducing seismic risk and loss of life or property in the event of an earthquake. Compliance with the requirements of the Current Uniform Building Code should assure that development permitted under the proposed rezonings should not result in increased exposure to seismic hazards.

In addition, because of potential failure of some older downtown buildings in the event of an earthquake, the City is in the process of drafting a seismic ordinance which would require mandatory structural investigations of all unreinforced masonry buildings (Category I) and all buildings constructed prior to 1935 and containing 100 occupants (Category II). Such reports would be

public information and be filed with the City for public review. Though the structural investigation by themselves will not reduce seismic risk, they may encourage owners to upgrade their buildings and will inform the public and occupants of those buildings what the potential risks are.

2. Air (a)

The growth strategy would allow somewhat over 350,000 square feet of additional development to occur within the study area. This is a level of development large enough to justify analysis, and could have potentially adverse effects. A study of these potential impacts will be completed prior to adopting any new zoning for the area, and will be included in the environmental assessment of the implementation phase of the Downtown Study.

3. Water (a)

Nearly all Downtown properties are already paved or covered with existing structures, and there should be no noticeable change in overall absorption rates or drainage flows from the strategies which are suggested. There are a few properties which contain landscaping or uncovered yard areas, and future development of these properties will include review for drainage effects.

6. Noise (a, b)

The addition of over 350,000 square feet of development in the next five years will result in an increase in traffic and a minor increase in noise levels. As this development will likely be scattered over the large study area, it is unlikely that the noise impacts of the added growth will be perceptible. The strategies would continue to allow new development along the Alma/Southern Pacific Rail Road corridor which is heavily impacted by noise. The Comprehensive Plan indicates that locations 50 feet away from Alma Street experience sound levels greater than 72 dBA 10 per cent of the time. That is a sound level greater than is considered acceptable for either commercial or residential uses, according to the Palo Alto Comprehensive Plan. Individual projects along this noise corridor will require substantial noise attenuation, which will be addressed as the projects are reviewed. It is not possible to accurately predict the proportion of the more than 350,000 possible square feet of development which might take place within the area of noise impact. The strategies reduce the potential for commercial development in the noisy area by from one third to one half compared to the present zoning, and the ability to attenuate noise in new projects partially mitigates the impact. The level of additional exposure of people to noise along Alma Street should be given addition study, and up to date sound levels should be established.

7. Light and Glare

The construction of over 350,000 square feet of new development, some of which may be residential or have evening occupancy, will contribute insignificantly to the amount of light and glare in the Downtown.

8. Land Use

The purpose of the strategies is to adjust the patterns and, more significantly, the amount of land use development in the area. The direction of the changes which have been proposed is toward less development and less potential for environmental change than is possible under the land use policies currently in effect.

9. Energy/Natural Resources

Construction and use of just over 350,000 square feet will require both initial and long term energy inputs. The energy requirements of this development will not be significant.

11. Population/Housing (a, b)

Using the criteria contained in the Housing Mitigation Ordinance, a net increase of 350,000 square feet of commercial use (office and retail) in the Downtown would generate a demand for 172 housing units for low and moderate income persons.

$$\frac{\text{Gross Square Feet}}{350} \times \frac{.31}{1.80} = \text{Demand for Low/Moderate Income Housing Units}$$

350 is average square footage per employee generated by commercial & industrial dev.

.31 is average number of employees in new commercial and industrial developments who will have household incomes below BMR level.

1.80 is average number of workers per working household Palo Alto.

$$\frac{350,000}{350} \times .17 = 172$$

The actual mitigation required under the Housing Mitigation Ordinance is 10 per cent of the demand generated, or 17 BMR housing units. An in-lieu payment of \$850,000 could be paid (current payment of \$50,000 per housing unit required). This requirement assumes that no credit is given for square footage devoted to child-care, recreation, or cafeteria space. This requirement also assumes that no 20,000 square foot exemption is given on any individual site, which is a provision of the ordinance.

In addition to allowing the increased number of workers, the strategies call for new, but yet not defined, housing incentives which may offset the potential increase in employment.

12. Transportation/Circulation (a,b,c)

The attached Table III from the Downtown Study Committee's report summarizes existing and cumulative traffic conditions at the five "gateway" intersections

of the Downtown. The combination of regional growth in traffic (estimated at 1.5% per year) at the gateways plus growth within the study area will lead to significant declines in level of service by 1995. The strategy of allowing 10 percent more growth in the next five years will have a relatively slight individual impact, causing no more than a half level of service (LOS) change at two intersections (Middlefield at Willow and University at Guinda) which will have level of service D/E or poorer by 1995. Due to regional traffic increases, a third intersection, University at High, will be at LOS "E" on its eastbound lane by 1995 but will be unchanged by the 10 percent growth increment.

To better understand the individual effect of the 10 percent growth level, the following figures show the service levels in 1990 as well as 1995. This table shows that a component of the expected decline in LOS by 1995 is from regional traffic increase. The volume to capacity ratio at the Middlefield and Willow intersection is directly affected by the 10 percent growth figure by only .01, and its eventual decline to LOS "E" in 1995 is mostly attributable to growth elsewhere, including Menlo Park.

	Base & Pipeline & Regional		Base, Pipeline, Regional +10% Growth	
	1990	1995	1990	1995
<u>Middlefield at Willow</u>				
Volume/Capacity LOS	.85 D	D/E	.86 D	E
<u>University at Guinda</u>				
Volume/Capacity LOS	.79 C/D	C/D	.88 D/E	D/E

The University at Guinda intersection is more directly impacted, with the 10% growth causing a full level of service change from C/D to a marginally acceptable level of D/E.

The eastbound lane of University at High will decline to LOS "E" by the addition of pipeline growth and will not be changed significantly by the 10% growth level or expected increases in regional growth to 1995.

From the above information, the direct effects of the 10% growth policy on traffic will not be significantly adverse. The higher growth alternatives of 20% and 40% added square footage would be significant in their impacts.

While the direct effects of a 10 per cent growth level are not significant, the cumulative growth in traffic which will cause LOS of E or D/E at three of the gateway intersections by 1995 is significant, and the 10 per cent growth figure is a part of this cumulative effect.

There is a significant existing parking deficit of around 1200 parking spaces in the study area. The deficit has adverse impacts on surrounding residential areas and on business in the Downtown. The strategies will have several impacts on parking, and will have a net beneficial impact if all are implemented. There will be a direct need to build at least one additional public parking structure. Half of the spaces in the structure would reduce the parking deficit, and would have a beneficial impact on the existing deficit. The second half of the spaces in the structure will be used to support new development. The requirement that new developments provide parking will lead to as many as an additional 1400 spaces to be privately built or paid for. The proposed program to allow developers to pay for parking spaces in new public garages may lead to the need for additional parking structures to be initially funded through the parking assessment district. The eight part recommendation for managing existing parking lots more efficiently will increase the parking supply. The proposal to allow minor additions to buildings on lots of less than 5,000 square feet without providing parking could lead to adverse parking effects unless mitigated by sufficient growth in public parking spaces to offset the parking need. There will be some economic impacts of the new programs to both developers and to the businesses making parking assessment district payments. The overall effect of the parking strategies is to allow additional development to occur without adding to the parking deficit.

19. Mandatory Findings of Significance (c)

There will be cumulatively significant declines in traffic level of service by 1995 (see discussion of Transportation/Circulation).

:

85-EIA-24

12

APPENDIX A-3

NOTICE OF PREPARATION

TO: Referrals List

FROM: Department of Planning and
Community Environment

City of Palo Alto

P.O. Box 10250

Palo Alto, CA 94303

SUBJECT: NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT (EIR)

The City of Palo Alto will be the Lead Agency and will prepare an Environmental Impact Report for the project identified below. We need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project or of concern to your community. Responsible agencies will need to use the EIR prepared by our agency when considering their permits or other approvals for the project.

The project description, location and the probable environmental effects are contained in the attached materials. A copy of the Initial Study is attached.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date, but not later than thirty (30) days after receipt of this notice.

Please send your response to George Zimmerman at the address shown above. We will need the name for a contact person in your agency.

PROJECT TITLE: Downtown Study, Strategy Phase

PROJECT APPLICANT: City of Palo Alto

DATE: July 17, 1985

SIGNATURE: 

TITLE: Manager, Planning Projects

TELEPHONE: (415) 329-2561

Reference: California Administrative Code, Title 14, Sections 15035.7, 15054.3 and 15066.

REFERRALS FOR DOWNTOWN STUDY EIR
NOTICE OF PREPARATION

AGENCY

STATE CLEARINGHOUSE
1400 Tenth Street, Room 121
Sacramento, CA 95814

Attn: Mr. Price Walker
Manager
(916) 445-0613

ABAG CLEARINGHOUSE
Post Office Box 2050
Oakland, CA 94604

Attn: Ms. Liz Blair
Clearinghouse Coordinator
(415) 464-7900

BAY AREA AIR QUALITY MANAGEMENT
CONTROL DISTRICT (BAAQMD)
939 Ellis Street
San Francisco, CA 94109

Attn: Mr. Louis Robinson
(415) 771-6000

METROPOLITAN TRANSPORTATION
COMMISSION (MTC)
Metro Center
101 8th Street
Oakland, CA 94607

Attn: Mr. Jeff Georgevich
Environmental Review Officer
(415) 464-7700

REFERRALS FOR DOWNTOWN STUDY EIR
NOTICE OF PREPARATION

AGENCY

SAN FRANCISCO BAY REGIONAL WATER
QUALITY BOARD
1111 Jackson Street, Room 6040
Oakland, CA 94607

Attn: Mr. Richard Whitsel
Chief of Planning
(415) 464-1329

SAN MATEO COUNTY PLANNING DIV.
590 Hamilton Avenue
Redwood City, CA 94063

Attn: Mr. David Hale
Planning Director
(415) 363-4161

SANTA CLARA COUNTY PLANNING DEPT.
70 West Hedding Street, 7th Floor
San Jose, CA 95110

Attn: Mr. Hugh Graham
(408) 299-2521

LOS ALTOS HILLS PLANNING DEPT.
Town Hall
26379 Fremont Road
Los Altos Hills, CA

Attn: Ms. Leslie Mullens
(415) 941-7222

7/16/85

XIII.-17

REFERRALS FOR DOWNTOWN STUDY EIR
NOTICE OF PREPARATION

AGENCY

MOUNTAIN VIEW PLANNING DEPT.
City Hall
540 Castro Avenue
Mountain View, CA

Attn: Mr. Ken Alsman
Principal Planner
(415) 966-6306

CITY OF MENLO PARK PLANNING DEPT.
701 Laurel Street
Menlo Park, CA 94025

Attn: Mr. Leon Pirofalo
Director
(415) 858-3390

LOS ALTOS PLANNING DEPT.
City Hall
1 North San Antonio Road
Los Altos, CA 94022

Attn: Mr. Vern Gomes
(415) 948-1491

CITY OF EAST PALO ALTO
Municipal Services Building
2415 University Avenue
East Palo Alto, CA 94303

Attn: Mr. Don Provost

7/16/85

XIII.-18

DEPARTMENT OF PLANNING AND RESEARCH

10TH STREET
MENLO, CA 95035

RECEIVED
JUL 22 1985

DEPARTMENT OF PLANNING
CITY OF PALO ALTO

DATE: July 22, 1985

TO: Reviewing Agencies

RE: The City of Palo Alto's NOP for
Downtown Study, Strategy Phase
SCH# 85072302

Attached for your comment is the City of Palo Alto's Notice of Preparation of a draft Environmental Impact Report (EIR) for Downtown Study, Strategy Phase.

Responsible agencies must transmit their concerns and comments on the scope and content of the EIR, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of this notice. We encourage commenting agencies to respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

George Zimmerman
The City of Palo Alto
P.O. Box 10250
Palo Alto, CA 94303

with a copy to the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the review process, call Price Walker at 916/445-0613.

Sincerely,

John B. Chanian
Chief Deputy Director

Attachments

cc: George Zimmerman

S - Sent by Lead Agency

Anne Geraghty
Air Resources Board
1131 S Street
Sacramento, CA 95814
916/322-6161

Barbara Kierbow
Dept. of Boating & Waterways
1629 S Street
Sacramento, CA 95814
916/323-9488

Jack Leibster
California Coastal Comm.
631 Howard Street, 4th Floor
San Francisco, CA 94105
415/543-8555

Greg Newhouse
California Energy Commission
1516 Ninth Street, Rm. 200
Sacramento, CA 95814
916/324-3222

Earl Tucker
Caltrans - Division of Aeronautics
1120 N Street
Sacramento, CA 95814
916/322-9966

Mary Kelly
Caltrans - Planning
1120 N Street
Sacramento, CA 95814
916/323-7222

Dennis O'Bryant
Dept. of Conservation
1416 Ninth Street, Room 1326-2
Sacramento, CA 95814
916/322-5873

Div. of Mines and Geology
 Div. of Oil and Gas
 Land Resources Protect. Unit

Harry Krade
Dept. of Food and Agriculture
1220 N Street
Sacramento, CA 95814
916/322-1992

Dennis Orrick
Dept. of Forestry
1416 Ninth Street, Room 1516-2
Sacramento, CA 95814
916/322-0128

James Hargrove
Dept. of General Services
1125 Tenth Street
Sacramento, CA 95814
916/324-0209

Kenneth Kizer
Dept. of Health
714 P Street, Room 1253
Sacramento, CA 95814
916/445-1248

X - Sent by Clearinghouse

Bill Murphy
Dept. of Housing & Community Dev't.
921 - 10th Street, 5th Floor
Sacramento, CA 95814
916/324-8657

Environmental Reviewer
Native American Heritage Comm.
915 Capitol Mall, Room 288
Sacramento, CA 95814
916/322-7791

Hans Kreutzberg
Office of Historic Preservation
P.O. Box 2390
Sacramento, CA 95811
916/445-8006

James M. Doyle
Dept. of Parks and Recreation
P.O. Box 2390
Sacramento, CA 95811
916/324-6421

George Hersh
Public Utilities Commission
350 McAllister Street
San Francisco, CA 94102
415/557-3398

Kirk Stewart
Public Works Board
1025 P Street, 4th Floor
Sacramento, CA 95814
916/445-5332

Mel Schwartz
Reclamation Board
1416 Ninth Street
Sacramento, CA 95814
916/445-2458

Robert Batha
S.F. Bay Conservation & Dev't. Comm.
30 Van Ness Avenue, Room 2011
San Francisco, CA 94102
415/557-3686

Eric Maher
Calif. Waste Management Board
1020 Ninth Street, Room 300
Sacramento, CA 95814
916/322-0464

Ted Fukushima
State Lands Commission
1807 - 13th Street
Sacramento, CA 95814
916/322-7813

Ken Fellows
Dept. of Water Resources
1416 Ninth Street
Sacramento, CA 95814
916/445-7416

Reed Holdenman
State Coastal Conservancy
1330 Broadway, Suite 1100
Oakland, CA 94612
415/464-1015

Department of Transportation
District Contacts

Don Comstock
Department of Transportation
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1656 Union Street
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707/442-2313

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Department of Transportation
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Jerry Laumer
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50 Higuera Street
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500 South Main Street
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714/873-2290

John Gagliano
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P.O. Box 2048
Stockton, CA 95201
209/948-7875

Jim Cheshire
Department of Transportation
District 11
2829 Juan Street
San Diego, CA 92138
714/237-6755

Fish and Game - Regional Offices

A. Naylor, Regional Manager
Department of Fish and Game
601 Locust
Redding, CA 96001
916/225-2300

P. Jensen, Regional Manager
Department of Fish and Game
1701 Nimbus Road, Suite A
Rancho Cordova, CA 95670
916/355-0922

B. Hunter, Regional Manager
Department of Fish and Game
7329 Silverado Trail
Napa, CA 94558
707/944-2011

G. Nokes, Regional Manager
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Fred A. Worthley Jr., Reg. Manager
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245 West Broadway
Long Beach, CA 90802
213/590-5113

Rolf E. Mall
Marine Resources Region
245 West Broadway
Long Beach, CA 90802
213/590-5155

State Water Resources Control Board

Joan Jurancich
State Water Resources Control Board
Division of Clean Water Grants
P.O. Box 100
Sacramento, CA 95801
916/322-3413

Ed Anton
State Water Resources Control Board
Division of Water Quality
P.O. Box 100
Sacramento, CA 95801
916/445-9552

Jerry Johns
State Water Resources Control Board
Delta Unit
P.O. Box 100
Sacramento, CA 95801

Al Yang
State Water Resources Control Board
Division of Water Rights
901 2 Street
Sacramento, CA 95814
916/324-5716

Regional Water Quality Control Board
Region # 2 City 6416



BAY AREA AIR QUALITY MANAGEMENT DISTRICT

July 23, 1985

City of Palo Alto
Planning Department
P.O. Box 10250
Palo Alto, CA 94303

Attn: George Zimmerman
Planning Projects Manager

Dear Mr. Zimmerman:

RECEIVED
July 23, 1985

DEPARTMENT OF PLANNING
CITY OF PALO ALTO

We have received the Notice of Preparation of a DEIR for the Strategy Phase of Palo Alto's Downtown Study. The Strategy Phase is the second of three phases of a study leading to changes in the City's zoning and parking programs. The Strategy Phase recommends strategies for controlling development in the downtown area for the next five years. The proposed strategies would allow about 350,000 square feet of additional development to occur in the Downtown Study area.

The Initial Study indicates that analysis of potential air quality impacts "will be included in the environmental assessment of the implementation phase of the Downtown Study." If the necessary traffic analyses are available, we recommend that the air quality analysis be conducted at the current phase to bring air quality concerns to bear on development decisions as early in the planning process as possible.

We recommend that the DEIR contain a candid qualitative and quantitative description of air quality impacts in the Study Area. The analysis should cover all pollutants emitted from vehicular traffic in the Study Area.

The vehicle-generated pollutants of concern are carbon monoxide, reactive organic compounds, and particulates. Calculations of particulates should include those resuspended from roads by vehicles and, separately, particulates caused by construction activities.

We suggest the following process for analyzing air quality impacts:

1. Describe the existing land uses in the Study Area and its vicinity in regard to air quality concerns. In particular, note the location and emissions of direct sources of air pollutants and airborne hazardous materials. In addition, show the location of sensitive receptors, including residential areas, schools, hospitals, nursing homes, playgrounds, parks, and recreation facilities.

2. Calculate worst-case air pollutant emissions in the Study Area.
3. Estimate maximum ambient carbon monoxide concentrations at the most congested intersections in the Study Area. The estimated concentrations should be calculated for 1-hour and 8-hour averaging times. If an intersection has 4000 or more cars in any one hour, we recommend using the model CALINE3 to estimate motor vehicle carbon monoxide impacts. Otherwise, we recommend using the simplified modeling techniques contained in the publication "Guidelines for Air Quality Impact Analysis of Projects," available from the BAAQMD. Be sure to add the appropriate background concentration to the estimated locally generated concentration and to explain the source or the rationale for the background level selected.
4. Compare the total projected carbon monoxide concentrations with State and federal air quality standards.
5. Consider mitigation measures to reduce air quality impacts. Useful references are "Local Government Guide to Project Mitigation and Other Improvement Measures for Air Quality," BAAQMD, 1983 Draft; "Guidelines for Air Quality Impact Assessments, Section V," California Air Resources Board, 1983; and "The Traffic Mitigation Reference Guide," Metropolitan Transportation Commission, 1984. Commitments to implementing proposed mitigation measures should be identified. Mitigation measures to reduce traffic and air pollutant emissions should be incorporated into the development control strategies to reduce negative impacts on the environment and to help the Bay Area attain and maintain the State and federal ambient air quality standards. Where mitigation measures may significantly reduce local concentrations of carbon monoxide, we recommend that reductions be quantified.

Because the Study Area is located in a rapidly growing subregion of the Bay Area, we recommend that the air quality section of the DEIR discuss the cumulative air quality impacts of development in the subregion and describe the local efforts to achieve a coordinated, subregional reduction of air pollutant emissions.

Current data from District air monitoring stations are enclosed. If we can be of assistance, please contact Jean Roggenkamp, the Planner in our office.

Sincerely,



Milton Feldstein

Air Pollution Control Officer

MF:ce
Enclosure

AIR POLLUTION IN THE BAY AREA BY STATION AND CONTAMINANT: 1984

For ozone (O_3) and for nitrogen dioxide (NO_2), "max" is the highest hourly average value in parts per hundred million. For carbon monoxide (CO), "max" is highest 8-hour average value in parts per million. (The one-hour standard for CO was never exceeded during the year.) For sulfur dioxide (SO_2) "max" is highest 24-hour average value expressed in parts per billion. For total suspended particulates (TSP), "mean" is annual geometric mean in micrograms per cubic meter. "Days" columns give number of days per year on which an air quality standard was exceeded: Federal for O_3 , CO and TSP; State for NO_2 and SO_2 . For TSP, Days refers to Federal 150 $\mu g/m^3$ secondary standard. The 3-year average for ozone, adjusted for instrument down-time, is the governing Federal standard (called Expected Annual Exceedance). Monitoring for O_3 , CO and NO_2 is continuous; monitoring for TSP is on the Federal systematic 6-day schedule; monitoring for SO_2 includes both time scales.

STATIONS	OZONE			CO		NO_2		SO_2		TSP	
	Max.	Days	3-Yr. Avg.	Max.	Days	Max.	Days	Max.	Days	Mean	Days
San Francisco	10	0	0.3	10.8*	1	14	0	33	0	60	1
San Rafael	11	0	0.0	5.8	0	12	0	6	0	55	0
Richmond	9	0	0.0	4.8	0	13	0	16	0	56	0
Pittsburg	16	1	1.0	4.9	0	7	0	35	0	57	0
Concord	14	3	2.7	5.9	0	10	0	11	0	46	0
Oakland	11	0	0.0	8.0	0	—	—	—	—	—	—
San Leandro	15	3	2.4	—	—	—	—	—	—	—	—
Hayward	15	3	2.2	—	—	—	—	—	—	—	—
Fremont	15	5	5.1	5.1	0	13	0	3	0	49	0
Livermore	15	7	5.4	4.3	0	9	0	3	0	55	0
Alum Rock, S.J.	15	4	4.1	—	—	—	—	—	—	—	—
San Jose	16	7	5.3	11.4	5	18	0	4	0	76	2
Moorpark, S.J.	—	—	—	—	—	—	—	—	—	46	0
Gilroy	16	3	2.7	3.4	0	—	—	—	—	—	—
Los Gatos	17	13	8.4	—	—	—	—	—	—	—	—
Mountain View	12	0	1.7	—	—	—	—	—	—	—	—
Redwood City	11	0	0.7	5.6	0	9	0	2	0	44	0
Santa Rosa	9	0	0.0	4.9	0	12	0	3	0	37	0
Sonoma	11	0	0.0	—	—	—	—	—	—	—	—
Napa	11	0	0.0	7.1	0	9	0	3	0	50	0
Vallejo	14	3	1.7	9.8	4	11	0	7	0	41	0
Fairfield	14	1	0.3	—	—	—	—	—	—	—	—

* Micro-scale site (Ellis Street) for street-level CO maximums

DEPARTMENT OF TRANSPORTATION

BOX 7310
SAN FRANCISCO 94120
(415) 557-1840

RECEIVED
AUG 07 1985

August 5, 1985

DEPARTMENT OF PLANNING
CITY OF PALO ALTO AdC101-0.89
SCH #85072302
SC101080

George Zimmerman
City of Palo Alto
P.O. Box 10250
Palo Alto, CA 94303

Re: N.O.P. - Palo Alto Downtown Study, Strategy Phase

Dear Mr. Zimmerman:

Thank you for including Caltrans in the environmental review process for the above-referenced project. The environmental document should address traffic impacts in the following terms:

- a. Trip generation, distribution and assignment;
- b. ADT (average daily traffic), and AM and PM peak hour volumes for State Route 101 and for all significantly affected streets and highways;
- c. Volumes for all through and turning movements in the affected intersections/interchanges should be shown and intersection capacity utilization calculations should be done;
- d. Data should relate to existing and future conditions, the latter with project traffic and with cumulative traffic generated by approved projects within the study area;
- e. Proposed mitigation, including modal alternates and highway improvements and their proposed financing mechanisms should be discussed.

We look forward to reviewing the draft EIR. We expect to receive a copy from the State Clearinghouse. However, to expedite the review process, you may send an advance copy to the undersigned, contact person for this agency, at the following address:

WALLACE J. ROTHBART
District CEQA Coordinator
Caltrans District 4
P.O. Box 7310
San Francisco, CA 94120

SC101080
Page 2
August 5, 1985

Should you have any questions regarding these comments, please contact Charlotte Cosulich of my staff at (415) 557-9431.

Sincerely yours,

BURCH C. BACHTOLD
District Director

By

for Charlotte Cosulich
WALLACE J. ROTHBART
District CEQA Coordinator

APPENDIX A-5

THE ECONOMIC EFFECTS OF PROPOSED GROWTH, LAND USE, AND PARKING STRATEGIES ON RETAIL SALES, RENTS AND THE BONDING CAPACITY OF DOWNTOWN PALO ALTO

A Report to
The City of Palo Alto

by

GRUEN GRUEN + ASSOCIATES
Urban Economists and Market Analysts

October 1985

C546



Gruen Gruen + Associates
564 Howard Street
San Francisco, Ca. 94105-3071
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CHAPTER I

PURPOSE AND APPROACH

STRATEGIES STUDIED AND EFFECTS CONSIDERED

This report summarizes the results of an economic analysis of four proposed growth and parking strategies in Palo Alto's downtown study. The four strategies and assumptions we have made about how they would be implemented are described below.

1. The passage of a parking requirement that four parking spaces be provided for each 1,000 square feet of new floor space built within the Downtown Parking Assessment District. For the purposes of this analysis, we assume that new construction on sites of less than 10,000 square feet and for space added through the remodeling of existing space will not be required to actually build the required parking but in-lieu payment of \$13,000 per required space may be made to the City of Palo Alto. This assumption is made because the physical problems associated with providing parking on sites of less than 10,000 square feet are usually significant. Palo Alto has few vacant lots in the study area and, thus, new construction would involve the replacement or extension of existing structures. The provision of required parking under or over small sites would not only be uniquely expensive, but the needed ramps would remove a significant proportion of leaseable ground floor retail



space. Thus, it would be infeasible in most cases to remove what exists and build new space or add on sizably unless in-lieu payments were made. After discussions with the Palo Alto Planning Department, it was decided to assume that such payments would be \$13,000 per space. However, the reader can draw conclusions from the analysis reported herein as to the effects of charging more or less than this amount. For larger new sites, we assume that developers would be required to build up to three underground levels of parking. If it is physically impossible to meet the requirement with three underground levels then additional requirements may be satisfied through \$13,000 in-lieu payments per required space.

2. The City commits itself to build at least one additional public parking structure to be financed partially by in-lieu parking payments.
3. A growth reduction strategy that would limit the total amount of space that can be added to the downtown and limit the size of individual commercial projects. The overall limit would allow net additions of up to 50,000 square feet per year until a total of 350,000 square feet has been added. Individual projects would be limited to a maximum of 25,000 gross square feet per building or the addition of 15,000 square feet, which-ever is greater.

4. Except for space now in other uses, ground floor space would be limited to the following uses:

Retail service

Eating/drinking establishments

Personal services, such as beauty shops, etc.

Travel agencies

Theatres

Hotels

All other uses, such as banking or office, would be allowed to remain if they occupy space today and the space currently occupied by such uses could be re-leased for the same purposes. However, if space currently used by prohibited uses were to be re-leased to a use on the list it could not subsequently be converted back to the prohibited use. It bears mention that while these ground floor space limitations have been recommended by the Downtown Study Committee, they have not yet been endorsed by the City Council.

EFFECTS CONSIDERED

In line with the City of Palo Alto request, we have concentrated our economic analysis on the identification of the likely effects of the above-listed strategies on the following:

1. The long-run trend in downtown sales.
2. Downtown rents, particularly at ground floor levels.

3. The tenant mix of the downtown's retail establishments.

4. The bonding capacity of the Downtown Parking Assessment District.

ANALYTICAL APPROACH AND ORGANIZATION OF THIS REPORT

The research summarized in this report sought insight into the key relationships that determine the demand for space, particularly retail space, in downtown Palo Alto and the likely effect of the proposed strategies on the key relationships that determined the supply of space in the Palo Alto downtown. The results of the research on demand is presented in the next chapter of this report. That chapter also concludes with our evaluation of the City's commitment to add parking. The results of our research on the effect that the policies will have on supply relationships are presented in the third chapter of this report. Finally, Chapter IV uses the insights gained from the research summarized in the previous chapters to forecast the likely interactions between the demand and supply relationships in order to reach conclusions concerning the effect of the strategies on the four conditions listed at the top of this page.

CHAPTER II

DEMAND RELATIONSHIPS

AN ANALYSIS OF RECENT AND PROJECTED TRENDS IN RETAIL SALES

Historic Growth of Retail Sales in Downtown Palo Alto

While history may not be the only guide to possible futures it is a good place to begin looking for signposts to identify significant relationships. Data on taxable retail sales in the downtown during the third quarter of each year were available for the period 1973 through 1984. From this database, Gruen Gruen + Associates (GG+A) prepared estimates of annual retail sales for that time period by "normalizing" these data to available data on annual sales in Palo Alto from the State of California Board of Equalization for the same time period. Finally, these estimates were converted to "constant dollar" estimates by utilizing a component of the Consumer Price Index to equate all estimates to 1984 dollar values.

Table II-1 presents the estimated annual taxable retail sales for downtown Palo Alto for the 1973-1984 period. Non-taxable sales, such as food, are not included. Building materials, auto supplies and farm implement sales, along with sales by auto dealers and service stations, have also been excluded from this analysis because their contribution to downtown retail sales is assumed to be marginal. Dollars generated from the IBM sales office which moved from downtown Palo Alto





TABLE II-1

Annual¹ Estimation of Taxable Retail Sales for Downtown Palo Alto, by Type of Retail Sector, 1973-1984²
(in thousands of 1984 dollars)

Gruen Gruen + Associates

Year	Apparel Stores	General Merchandise	Eating/Drinking Establishments	Home Furnishings/Appliance Stores	Other Retail Stores ³	Net Retail Sales
	\$	\$	\$	\$	\$	\$
1973	7,307	3,329	5,604	4,211	17,851	38,302
1974	6,145	5,668	6,653	3,628	12,746	34,840
1975	5,644	4,369	6,848	3,725	18,565	39,151
1976	7,154	5,210	7,495	5,381	11,335	36,575
1977	7,465	4,981	12,045	4,768	15,711	44,970
1978	7,843	5,215	14,538	4,982	7,388	39,966
1979	7,795	5,091	16,275	5,540	20,412	55,113
1980	8,640	4,628	15,207	4,844	24,071	57,390
1981	7,244	4,539	15,139	5,402	24,217	56,541
1982	6,934	4,657	15,831	4,865	26,711	58,998
1983	8,029	5,785	16,882	7,282	27,795	65,773
1984	9,180	6,664	16,416	8,448	30,552	71,260

¹Annual retail sales dollars were estimated using third quarter taxable retail sales figures for the downtown Palo Alto study area. Figures were estimated using the ratio of third quarter retail sales to annual retail sales for the City of Palo Alto between 1973 and 1984.

²Current dollars have been adjusted using the Commodities Less Food component of the Consumer Price Index.

³Source: U.S. Department of Commerce, Bureau of Economic Analysis, Business Statistics.

³IBM sales have been extracted from these totals. Includes taxable sales from florists, sporting goods stores, gift, art and novelty shops, photographic supplies, stationary/book shops, musical instrument, second-hand merchandise, farm/garden supply, fuel and ice dealers, mobile homes, trailers, campers, boat, motorcycle, and plane dealers.

Sources: City of Palo Alto Planning Department; Gruen Gruen + Associates.

in 1982 have also been deducted. Thus, net retail sales in 1984 dollars increased by 86 percent over the past 12 years, climbing from \$38,302,000 in 1973 to \$71,260,000.

This growth includes a very rapid increase in sales for "other retail stores", a general category which includes a variety of small retail shops - gift, art, novelty shops, stationary and book stores, photographic supply shops, and the like. It is worthwhile to note that this category may still include some items not sold in the type of retail stores that are the focus of the policy even though we have deducted IBM sales from this category. Also, the reader should recognize that the time series under discussion, presented in Table II-1, began not too long after the deed restrictions barring the sale of alcoholic beverages in Palo Alto were lifted. Subsequently, it is not surprising to find that the eating and drinking establishments experienced a notable increase in dollar sales over the first few years of the period, rising 33.7 percent between 1973 and 1976, 26.3 percent between 1977 and 1980, and only 8.4 percent between 1981 and 1984. These percentage changes in sales, increasing at a decreasing rate, suggest that this sector may be leveling-off over time. Until the increase in sales for restaurants, which occurred after the deed restriction was ruled illegal, and the increase in the "other retail stores" category in 1977, sales had been declining. Since then, they have generally been on a healthy upward trend.

For the entire period this growth in sales in the five sectors of retail trade under consideration appears particularly

TABLE II-2

The Composition of Taxable
Sales for Downtown Palo Alto, 1973-1984¹
(in 1984 dollars)

<u>Retail Sector</u>	<u>Percentage of Total Net Retail Sales</u>					
	<u>1973</u> <u>%</u>	<u>1976</u> <u>%</u>	<u>1977</u> <u>%</u>	<u>1980</u> <u>%</u>	<u>1981</u> <u>%</u>	<u>1984</u> <u>%</u>
a) Apparel	19	20	17	15	13	13
b) General Merchandise	9	14	11	8	8	9
c) Eating/Drinking Establishments	15	21	27	27	27	23
d) Home Furnishings/ Appliance Stores	11	15	11	8	10	12
e) Other Retail Stores ²	47	31	35	42	43	43

¹Current dollars have been adjusted using the Commodities Less Food component of the Consumer Price Index. Source: U.S. Department of Commerce, Bureau of Economic Analysis, Business Statistics.

²IBM sales have been extracted from these totals. Includes taxable sales from florists, sporting goods stores, gift, art and novelty shops, photographic supplies, stationary/book shops, musical instrument, second-hand merchandise, farm/garden supply, fuel and ice dealers, mobile homes, trailers, campers, boat, motorcycle, and plane dealers.

Sources: City of Palo Alto Planning Department; Gruen Gruen + Associates.



impressive when compared to the growth of retail sales in surrounding areas. Over the same time frame in which sales in downtown Palo Alto increased 86 percent (1973-1984), net annual retail sales in Santa Clara County increased 58 percent, net annual retail sales in the City of Palo Alto as a whole increased 21.3 percent, and net retail sales in Palo Alto excluding the downtown but including Stanford Shopping Center rose only 15 percent. All of these figures are represented in real, 1984, dollars.

Shifts in the Components of Downtown Palo Alto Sales

As indicated previously, over the past 12 years the bulk of taxable dollar sales in the downtown area has come from the "other retail shops" (for complete listing of "other retail" shops, see Table II-1, footnote 3). In 1973, these retail shops represented 47 percent of net retail sales downtown. Sales for the other retail shops took a dive in the early to mid-1970's, falling 36.5 percent between 1973 and 1976, driving down total net retail sales. Sales began to increase again in 1979 and these small retail shops again comprise over 40 percent of net retail sales in the downtown.

The remaining two-thirds of downtown retail sales come from apparel shops, general merchandise stores, eating and drinking establishments, and home furnishing/appliance stores. The general merchandise and home furnishing stores have historically comprised, on the average, approximately 10 and 12 percent of net annual retail sales, respectively. Sales

from the apparel shops appear to be decreasing as a proportion of net retail sales over time, declining from approximately 20 percent of net retail sales in 1973 to 13 percent in 1984. Table II-2 presents a synopsis of the proportion of total retail sales accounted for by the various retail tenancies that have occupied downtown retail spaces over the last 12 years. Table II-3 presents the rates of growth for different categories of retail sales for selected time intervals over the 12-year span.

The increase in sales and shifts in the composition of retail space tend to go hand in hand, particularly if sales increase faster than the amount of space in retail occupancies. As retail demand for goods and services in a given retail agglomeration increases, those merchants that are most successful in attracting additional customer dollars can earn more profit and afford to pay higher rents to stay in the agglomeration. Thus, unless the supply of space increases as fast or faster than retail sales, the types of retailers that can afford to pay more for space will gradually occupy space previously occupied by the types of tenants that cannot pay as much per square foot. Thus, for example, downtown Palo Alto today no longer has the kind of full-line grocery store that cannot afford to pay as much per square foot of space as specialty retailers, food service establishments, and other retail uses.

Therefore, it is not surprising to note that as retail demand has increased in downtown Palo Alto and the composition of the retail base has shifted, sales per square foot of space

TABLE II-3

Percentage Change in Annual Taxable Retail Sales
for Downtown Palo Alto: 1973-1976, 1977-1980, 1981-1984¹
 (in 1984 dollars)

<u>Retail Sector</u>	<u>1973-1976</u> %	<u>1977-1980</u> %	<u>1981-1984</u> %
a) Apparel	-2.1	15.7	26.7
b) General Merchandise	56.5	-7.1	46.8
c) Eating/Drinking Establishments	33.7	26.3	8.4
d) Home Furnishings/Appliance Stores	27.8	1.6	56.4
e) Other Retail Stores ²	-36.5	53.2	26.2
NET RETAIL	-5.0	27.7	26.0

¹ Current dollars have been adjusted using the Commodities Less Food component of the Consumer Price Index. Source: U.S. Department of Commerce, Bureau of Economic Analysis, Business Statistics.

² IBM sales have been extracted from these totals. Includes taxable sales from florists, sporting goods stores, gift, art and novelty shops, photographic supplies, stationary/book shops, musical instrument, second-hand merchandise, farm/garden supply, fuel and ice dealers, mobile homes, trailers, campers, boat, motorcycle, and plane dealers.

Sources: City of Palo Alto Planning Department; Gruen Gruen + Associates.



have increased. As indicated in Table II-4, we estimate that since 1975 sales per square foot measured in 1984 dollars have gone from \$79 per square foot to about \$122. Breakdowns of sales by the components of the retail base suggest that sales per square foot for the eating and drinking establishments have gone from \$95 to \$158, while other retail establishments have gone from \$76 to \$113 per square foot.

Projection of the Trend of Retail Sales

The time series of data on the components of retail sales discussed above and presented in Table II-1, was utilized in order to prepare a linear projection of downtown Palo Alto retail sales to the year 2000. GG+A prepared this projection in order to have a trend to indicate future retail sales based only on a projection of the past. This trend would then be used to consider the likely changes which would be induced by the implementation of the strategies under evaluation.

Under the trend projection which is presented in Table II-5, retail sales in 1984 dollars increase 68.8 percent over the next 15 years, reaching \$119,977,000 by the year 2000. The eating and drinking establishments are likely to continue to expand another 10 percent as a proportion of downtown retail sales, comprising over 30 percent of the net retail figure by the year 2000. The "other retail stores" continue to account for approximately 40 percent of net retail sales while the apparel sector is projected to slip another 5 percent over





TABLE II-4

Net Annual Taxable Retail
Sales per Square Foot of Occupied,
Ground Floor Retail Space for Downtown Palo Alto: 1975-1983
(in 1984 dollars)

Year	Net Retail Sales per Sq. Ft. ² \$	Percent Change in Sales per Sq. Ft. %	Eating and Drinking Sales per Sq. Ft. \$	Percent Change in Sales per Sq. Ft. %	Net Retail Sales Excluding Eating and Drinking per Sq. Ft. \$	Percent Change in Sales per Sq. Ft. %
1975	78.8	-	95.0	-	76.0	-
1979	96.0	21.8	n.a.	-	n.a.	-
1981	101.2	5.4	147.1	54.8	90.8	19.5
1983 ³	122.4	21.0	158.2	7.6	113.5	25.0

n.a. = data was unavailable.

¹ Includes total ground floor area for retail use and total ground floor area for eating and drinking.

² Current dollars have been adjusted using the Commodities Less Food component of the Consumer Price Index. Source: U.S. Department of Commerce, Bureau of Economic Analysis, Business Statistics.

³ The 1983 retail space figure is an average of the May and December ground floor retail space estimates.

Source: Joint Sponsor Group of Property Owners and Retail Merchants of Downtown Palo Alto; Gruen Gruen + Associates.

TABLE II-5

Projection of Annual Retail Sales for
Downtown Palo Alto by Type of Retail Sector, 1985-2000¹
 (in thousands of 1984 dollars)

<u>Retail Sector</u>	<u>1985</u> \$	<u>1990</u> \$	<u>1995</u> \$	<u>2000</u> \$
a) Apparel	8,596	9,480	10,363	11,246
b) General Merchandise	5,812	6,428	7,043	7,659
c) Eating/Drinking Establishments	19,760	25,412	31,064	36,716
d) Home Furnishings/ Appliance Stores	7,265	8,809	10,354	11,899
e) Other Retail Stores ²	29,659	37,258	44,858	52,457
NET RETAIL SALES	71,091	87,386	103,682	119,977

¹ Current dollars have been adjusted using the Commodities Less Food component of the Consumer Price Index. Source: U.S. Department of Commerce, Bureau of Economic Analysis, Business Statistics.

² IBM sales have been extracted from these totals. Includes taxable sales from florists, sporting goods stores, gift, art and novelty shops, photographic supplies, stationary/book shops, musical instrument, second-hand merchandise, farm/garden supply, fuel and ice dealers, mobile homes, trailers, campers, boat, motorcycle, and plane dealers.

Sources: City of Palo Alto Planning Department; Gruen Gruen + Associates.



the period, accounting for just 9 percent of net retail sales by the year 2000.

Table II-6 presents the proportion of sales that would be accounted for by the various categories of retail sales under the assumption that the trend projection is actually a forecast of the future. In reality, even in the absence of the policy changes being considered, the future of the retail sector in downtown Palo Alto would be shaped by forces other than the trend of history. If GG+A were to forecast the future of retail sales, these other factors would have to be considered. In evaluating the parking and use strategies under consideration, particular attention has to be paid to the likely effect of parking constraints and the impact of changing the real estate investment relationships that determine the amount of space likely to be added in the future. Therefore, before turning to a consideration of the manner in which the parking and use strategies would alter the supply relationship, these other demand determinants are discussed.

THE IMPACT OF PARKING ON FUTURE RETAIL DEMAND IN DOWNTOWN PALO ALTO

The Deficit in Downtown Parking

In March 1984, the City of Palo Alto conducted a downtown parking analysis with the aid of aerial photography in which pictures were taken at 7:00 a.m., 10:30 a.m. and 12:30 p.m. The purpose of the three time periods was to ascertain the degree of congestion at the peak hour of 12:30 p.m. and to identify the degree to which the long-term parking needs of

TABLE II-6

Projected Change¹ in the Composition of Taxable
Retail Sales for Downtown Palo Alto, 1985-2000²
 (in 1984 dollars)

<u>Retail Sector</u>	<u>Proportion of Total Net Retail Sales</u>			
	<u>1985</u>	<u>1990</u>	<u>1995</u>	<u>2000</u>
a) Apparel	.12	.11	.10	.09
b) General Merchandise	.08	.07	.07	.06
c) Eating/Drinking Establishments	.28	.29	.30	.31
d) Home Furnishings/ Appliance Stores	.10	.10	.10	.10
e) Other Retail Stores ³	.42	.43	.43	.44

¹Changes in composition are estimated using the projected sales figures from Table II-5. Projected dollar sales were derived by extending a linear trend of retail sales between 1973 and 1984 for 15 years into the future.

²Current dollars have been adjusted using the Commodities Less Food component of the Consumer Price Index. Source: U.S. Department of Commerce, Bureau of Economic Analysis, Business Statistics.

³IBM sales have been extracted from these totals. Includes taxable sales from florists, sporting goods stores, gift, art and novelty shops, photographic supplies, stationary/book shops, musical instrument, second-hand merchandise, farm/garden supply, fuel and ice dealers, mobile homes, trailers, campers, boat, motorcycle, and plane dealers.

Sources: City of Palo Alto Planning Department; Gruen Gruen + Associates.



downtown employees were being met by on-street parking in the adjacent neighborhoods.

The study compared the cars that were parked on the street at 7:00 a.m. to those parked at mid-day. The assumption was made that 100 percent of the cars that were there at 12:30 p.m. that were not there at 7:00 a.m. could be assumed to be those of employees working in the downtown core.

Under the above assumption and utilizing the standards set by the City for acceptable occupancy (85 percent for off-street and 90 percent for on-street spaces for the downtown core area) the study concluded that there was a deficit of 1,844 spaces within the total study area that includes the downtown core, the edge blocks and peripheral residential blocks. This larger study area contained 9,280 spaces at the time of the March, 1984 analysis. Given the above assumptions, an inference can be made that there currently is a 20 percent parking deficit. However, the parking demand was not differentiated as to source in the City's study. Therefore, it is difficult to estimate how much of the parking demand is derived from core area employment.

That parking is perceived to be a significant problem can not be debated. According to the consumer survey conducted by Lynn Sedway & Associates in November 1981, 42 percent of the shopper sample cited inadequate parking as the primary downtown problem. Improved parking was also the most dominant improvement desired by the survey participants. An interesting finding in this survey was the fact that dissatisfaction



(particularly as it related to parking and street congestion) was greatest for those respondents who either lived and/or worked in the City of Palo Alto as distinct from those respondents who both live and work outside the City. This finding suggests that near-by residents and workers are more likely to visit the downtown for convenience good trips while those who come from further away are more likely to be coming for specialty goods or shoppers items. Convenient parking is absolutely essential to attract the shopper seeking convenience goods and services. Because this type of shopping trip does not involve the purchase of a unique good or service, the total trip time and ease of travel will be considered prior to the selection of a destination. The shopper may select a shopping destination farther away if the total time it takes to find parking equals or exceeds the extra driving time. The degree to which parking will be conducive to or retard additional shopping trips is dependant upon several interrelated factors: the types of tenancies, the types of market segments attracted to the shopping area and the relationship between parking demand and supply, particularly as it relates to competitive shopping locations that are available to the same market segments. These significant interrelationships will next be addressed.

The Impact of Tenancies

As previously noted, shoppers desirous of convenience goods and services are more likely to demand accessible and convenient parking options. Downtown Palo Alto does not offer either of these at this point in time. Retail rents in the



downtown core are, at the same time, pricing out the traditional convenience good stores and services such as drug stores, food markets, shoe repair, dry cleaners, etc. Therefore, there is a continuing ongoing feedback between the increasing difficulty of making convenience trips and the amount of convenience-type goods and services offered by the downtown retailers. Even if there were an excess of on-street parking spaces in the downtown core, this excess supply, per se, would not induce a greater amount of convenience goods and service trips unless at the same time ground floor rents were to be brought down to enable such tenancies to flourish financially. As indicated previously, given increasing demand, this could only happen in the very unlikely event that space expanded in proportion to the increasing retail sales. We will discuss the likely future path of supply as it is impacted by the proposed strategies in the next chapter of this report.

Relationship Between Office Use and Retail Demand

A rule of thumb used in the industry is every employee generates the demand for about four square feet of retail space. Employment in downtown Palo Alto, which consists of a high proportion of legal and professional services and finance, insurance and real estate firms, is likely to generate an even higher rate of retail demand due to the amount of visitation they induce.

In 1984, downtown Palo Alto contained about 1,402,000 square feet of occupied office space.* By assuming 223 square feet of office space per person, we estimate employment of approximately 6,290 office workers. If each of these workers directly generates the need for 4 square feet of retail tenancies and indirectly through visitation generates the need for an additional two square feet, downtown office workers generate demand for 37,740 square feet of retail space. In 1983, downtown Palo Alto contained approximately 530,000 square feet of occupied ground floor retail space. Under the above assumptions, office employment demand would have accounted for about 7 percent of this space.

While the Lynn Sedway & Associates 1981 study does not separate the primary purpose for being at the interview site by shopping location, it does suggest the major contribution that employees make to near-by retail tenancies.

Fifteen percent of the respondents were persons who reside in Palo Alto and who are not employed. This group consists of retirees, housewives, and students. Convenience to home was the dominant response of this group when asked to identify the strengths of the downtown as a shopping area. In the 1981 shopper survey, 63 percent of those unemployed respondents residing in Palo Alto indicated convenience as the most

* This figure is derived by combining total floor area occupied in 1984 by professional, medical, government, general business, and financial service offices with one-half the pipeline space allocated for office use as the pipeline project is currently assumed to have a 50 percent occupancy rate. Source: Palo Alto Planning Department.

influential reason for shopping in the downtown core. The next highest convenience ranking was offered by the 10 percent of the respondent sample who reside in Palo Alto but are employed elsewhere. Fifty-four percent of these shoppers indicated convenience as their primary reason for shopping in the downtown.

On the other hand, of the almost 20 percent of the shoppers who both live and work outside the City, only 19 percent indicate that convenience is a critical motivation. Over one-half of this market segment, or 57 percent, is attracted to downtown Palo Alto because of the general atmosphere. This is also the market segment that appears to be least impacted by the difficulty of obtaining parking. But, since this market segment is willing to travel further in the first place because of the downtown's perceived attractions, time spent finding available parking is a much lower proportion of total trip time than it is for near-by workers and residents. Nonetheless, this does not mean that the need for adequate parking can be ignored. While it may well be that these long-distance shoppers are more willing to accept a higher degree of inconvenience the converse - that improved parking would not induce even more frequent trips to the downtown - can not be said to be true.

The Impact of Competitive Shopping Locations

The 1981 study showed that downtown Palo Alto is the second most preferred destination within the city, second only to the Stanford Shopping Center. Given that the Stanford Shopping Center contains 1,330,000 square feet of retail space,

or about 2.5 times as much as currently occupied in the downtown, this suggests that at least at the time of the study (1981), downtown Palo Alto had a relatively strong and healthy retail base. This finding also tends to be corroborated by the rate of increase in dollar sales in downtown Palo Alto between 1980 and 1984, as compared with the City as a whole. Between 1980 and 1984, retail sales in downtown Palo Alto increased by 26 percent. During this same time interval (1980-1984), the City as a whole, excluding the downtown, decreased by 2.1 percent and with downtown Palo Alto retail sales included, increased by 1.8 percent.

Because, in the consumer's mind, the ready availability of parking is associated with the regional shopping center, such centers are typically perceived to be more accessible. Frequently, the consumer is forced to walk an equal or greater distance but because they can see their destination and can be assured of finding a space, they perceive that parking is readily available. Since it is the perception and not necessarily the reality of parking adequacy that influences shopper motivation, parking availability is a critical ingredient to the long-term health of a shopping district.

THE RELATIONSHIP BETWEEN INCREASED DOWNTOWN PARKING AND FUTURE SALES IN DOWNTOWN PALO ALTO

Consideration of the other strategies to be evaluated must await an analysis of their impact on the likelihood that private investors will add retail space and parking. However, the effect of the City's commitment to build at least one additional public parking structure can be evaluated now.



The overview analysis summarized above leads to the following three conclusions:

1. The current decline in the number of retail tenancies offering convenience goods and services in downtown Palo Alto can be expected to continue even if increased short-term on-street parking spaces are available.

With increased parking, the best that can be expected is that the rate at which some of those tenancies continue to leave the downtown may be slowed somewhat. But, as long as ground floor downtown retail rents continue to rise, as they are likely to do with increased office demand and increased development costs (some of which will be engendered by the City's proposed parking requirements), specialty retailers and restaurants will be able to price out the convenience store or service retailer. Those merchants who both own and operate a convenience-type operation and who are less likely to calculate their true opportunity costs will tend to remain in the downtown the longest.

2. Additional parking in the downtown will encourage more frequent shopping trips and bring more retail dollars to the downtown.

Since any downtown location is forced to compete with both shopping centers and major free-standing stores that offer free and convenient parking, additional parking is likely to be translated into increased sales because the existence of such parking encourages more frequent shopping trips. Even under the most unrealistic assumption that additional parking would not encourage trips from those who do not currently shop in the downtown because they perceive parking to be a problem, at the very least this additional parking would

induce a greater number of shopping trips from those consumers who already frequent the downtown. More frequent trips translates into additional retail sales dollars because of the tendency to combine visits to multiple retail tenancies and the increased likelihood that consumers will purchase impulse items once they are at a shopping location.

3. The downtown Palo Alto retail base is critical to the City's retail sales health.

Downtown Palo Alto has come a long way in the last ten years, in terms of playing a more significant role in the City's retail tax base. This is evident by the retail sales tax gain made by the downtown in the 1980-1984 period as compared with the City as a whole and suggests that any policy, parking or other, that encourages the continued development of retail space in downtown Palo Alto will not only create a more vital city center but will contribute to the City's financial health.



CHAPTER III

SPACE SUPPLY RELATIONSHIPS IN DOWNTOWN PALO ALTO

THE REAL ESTATE INVESTMENT SIMULATION APPROACH

Any additions to the supply of commercial space in the downtown will be made by private investors seeking a positive return on the money they put up to pay for development. Investors see development as feasible if they can expect the future earnings from rents to provide them with returns on the equity or cash they put up that are equal to or exceed those that they feel could be earned in equally risky alternative investments. Thus, insight into the determinants of the supply of additional space in downtown Palo Alto can be garnered by simulating the investment results of downtown development. This is what we have done with a series of simulations utilizing the GG+A computer real estate investment simulation model (REISM).

Initially, we simulated four prototypical types of new commercial development and the addition of space through remodeling. However, the results of this analysis can be summarized by considering two remodeling additions of 1,000 square feet each and two types of new prototypical development - one on a 5,000-square-foot lot and another on a 10,000-square-foot downtown lot. For each of the prototypical supply additions, we conducted computer simulations to estimate:



1. Achievable returns under present market conditions.
2. Returns assuming the implementation of the proposed parking requirements with no change in current market conditions so as to cause rents to increase above inflation.
3. The increase in rents that would be required to bring investment returns to a level competitive with other investment options so as to make new development feasible.

The results of this analysis are presented below followed by a section that describes the revenue and cost inputs utilized for the computer simulations. Data for these inputs were obtained by reviewing data collected by the City's Downtown Study Committee, the Planning Department, the Joint Sponsor Group of Property Owners and Retail Merchants of Downtown Palo Alto, and interviews conducted by GG+A with Palo Alto realtors and developers. Copies of print-outs detailing the simulations have been forwarded to the Palo Alto Department of Planning and Community Environment.

RESULTS OF REAL ESTATE INVESTMENT SIMULATIONS

Table III-1 presents the results of the real estate investment simulation analysis. The returns stated are the internal rates of return that would apply under the revenue and

TABLE III-1
Investment Results of Commercial Development in Downtown Palo Alto

<u>Prototype of Development</u>	<u>Return on Equity</u>		<u>Increase in Rents Required for Feasibility Under Parking Requirements</u> %
	<u>Present Conditions</u> %	<u>Parking Requirements</u> %	
10,000 square feet new (5,000-square-foot lot)	14.7	1.6	+31
20,000 square feet new (10,000-square-foot lot)	14.7	negative	+43
1,000 square feet addition			
Office	33.2	18.0	n.a.
Retail	34.2	19.3	n.a.

n.a. = not applicable.

Source: Gruen Gruen + Associates



cost assumptions discussed below assuming the investors held the property for seven years and then sold the holdings. Currently, new development shows returns of close to 15 percent, an acceptable level of feasibility. However, the imposition of the parking requirement would bring returns well below the feasibility level. Thus, ceteris paribus, the imposition of the proposed parking requirement would have the effect of stopping all additions to the supply of commercial space in downtown Palo Alto except those that add space to existing structures. However, over time, if rents increase by about 43 percent after inflation, additions to the supply of space in new buildings could once again be feasible. Table III-1 also shows that the return from adding 1,000 square feet of space to an existing structure would be substantially reduced by the imposition of parking requirements.

DESCRIPTION OF INITIAL SIMULATIONS

The computer cash flow simulations summarized here tested the financial results of developing a 5,000-square-foot lot, a 10,000-square-foot lot and 1,000 square feet of additional space on an existing structure. The results of building a new two-story (2:1 FAR) structure on lots of these sizes were reported because the 10,000-square-foot lot represents an important breaking point. At sizes smaller than that, parking cannot be provided below-ground so developers would be permitted to make payments of \$13,000 per required parking slot to the City. Beyond that size, we have assumed that developers would have to build most of the required space and

only make in-lieu payments to the City after having exhausted the physical limits of going three stories underground. Not only would the developers of buildings on larger lots wind up paying more for the parking they construct but the need for ramps would reduce the amount of leasable space they could build on the ground floor; that is, their building efficiency would be reduced. In testing buildings developed on various size lots at a floor area ratio of 2:1, the returns for buildings below those built on a 10,000-square-foot lot were similar. Also, the returns for buildings built on lots 10,000 square feet and larger were similar. A third alternative development was also tested. This alternative considered the feasibility of constructing 1,000 square feet of space as an addition to an existing one-story structure.

Table III-2 presents a summary of the revenue and cost inputs used throughout this analysis. As indicated above, we augmented the data collected by the Downtown Study Committee with discussions with persons familiar with market rents and costs that apply to downtown Palo Alto commercial space.

It is assumed, for each of the two lot sizes, that an existing one-story building must be demolished before a new two-story building can be built. In order to estimate the cost of acquiring the site with an existing structure we assumed that the investor would have to pay the value of a \$1.85 per month net rental stream per square foot capitalized at 9 percent. Thus, a 5,000-square-foot site with a one-story building on it would cost \$1,230,000 and a 10,000-square-foot

TABLE III-2

**Financial Inputs and Demand
and Cost Parameters for Phase I Simulations**

Demolition of Existing Uses:	\$1.25 per square foot
Land Cost:	\$1.85 per square foot per month capitalized at 9 percent
Mortgage Rate:	12%
Mortgage Term:	25 years
Initial Rents*:	
Retail	\$2.00 per square foot per month
Office	\$2.20 per square foot per month
Rent Escalation Factor:	3.5 percent each year
Construction Costs:	
Retail - new	\$60 per square foot
Office - new	\$78 per square foot
Additions to an Existing Structure	\$100 per square foot
Soft Costs:	22.5 percent of construction costs
Occupancy:	
One Year After Construction	50 percent
Thereafter	100 percent

*Rents are assumed to be NNN.

Source: Gruen Gruen + Associates



site with a one-story building on it would cost \$2,460,000. Demolition costs are assumed to be \$1.25 per square foot of building space. Each of the new two-story buildings is assumed to have an equal amount of office and retail space and the buildings are assumed to have floor area ratios (FAR's) equal to 2.0. The simulation for the 5,000-square-foot lot assumes, therefore, that 5,000 square feet of office space and 5,000 square feet of retail space are built while the simulation for the 10,000 lot assumes 10,000 square feet of each type of space are built.

Construction costs are assumed to be \$60 per square foot for retail space and \$78 per square foot for office space. The \$18 difference is based on the assumption that while a developer need not provide tenant improvements to lessees of retail space, one-half of the office-tenant improvement costs will be borne by the developer and the remainder by the tenant. We also assume that soft costs are equal to 22.5 percent of total construction costs. Rents are assumed to be \$2.00 per square foot per month for retail space and \$2.20 per month for office space. Future rents are assumed to increase at 3.5 percent per year due to inflation. The simulations assume that construction is completed in one year, that only one-half of the net rentable space is occupied during the first year the building is available for occupancy and that there is full occupancy thereafter.

The options testing the feasibility of remodeling an existing structure through the addition of 1,000 square feet of space



used construction costs equal to \$100 per square foot. This figure is an estimate of the costs of both preparing an existing structure for remodeling and the constructing of the additional space. No land costs were included in these scenarios.

SIMULATIONS DESCRIBING THE INVESTMENT EFFECT OF THE PROPOSED PARKING REQUIREMENT

The initial simulation of the situation assuming that development was allowed under current conditions can be referred to as a base case. This second set of simulations differs from those tested in the base case in that the costs associated with providing the minimum amounts of required parking have been included. Table III-3 presents the parameters used in Phase II of the analysis.

It is our understanding that the proposed parking regulation would require developers of commercial space to either purchase from the City of Palo Alto or provide on-site four parking spaces for every 1,000 square feet of commercial space developed. As mentioned above, the under-10,000-square-foot lot size simulation assumes that the developer will choose to purchase the 40 required parking spots from the City.

The cost of each off-site parking space is assumed to be \$13,000. The 10,000-square-foot lot size simulation assumes that the developer will construct underground parking in order to provide the required parking spaces. Assuming that

each parking spot must be at least 400 square feet in size, each underground floor on a 10,000-square-foot lot can accommodate 25 automobiles. We have assumed that rather than build 4 underground parking levels, a developer of a lot this size would choose to provide 75 of the 80 parking spots on-site and acquire from the City the remaining 5 as off-site spots. As shown in Table III-3, we assume that construction costs for parking increase as construction goes further underground. The construction costs for the first, second and third levels of underground parking are, therefore, assumed to be \$28, \$32 and \$35 per square foot, respectively.

We also assume in this phase and in the next phase of the analysis that there are no additional fees charged for parking nor are there additional maintenance costs generated by the provision of parking.

While the return on the 5,000-square-foot lot decreases from 14.7 percent to 1.6 percent, the return on the larger size development decreases from 14.7 percent to a negative return. The negative return is due to the fact that it is not until year 9 that the discounted net cash flow and "take-out" or net gain from a sale are equal to or greater than the amount of equity initially invested in the project. Based on the assumptions utilized in this analysis, the affect of parking requirements such as those currently proposed will be to totally eliminate the financial viability of commercial real estate investment in downtown Palo Alto unless rents increase substantially. A return of 1.6 percent is far below the



TABLE III-3

Financial Inputs and Demand
and Cost Parameters for Phase II Simulations

Demolition of Existing Uses:	\$1.25 per square foot
Land Cost:	\$1.85 per square foot per month capitalized at 9 percent
Mortgage Rate:	12%
Mortgage Term:	25 years
Initial Rents*:	
Retail	\$2.00 per square foot per month
Office	\$2.20 per square foot per month
Rent Escalation Factor:	3.5 percent each year
Construction Costs:	
Retail - new	\$60 per square foot
Office - new	\$78 per square foot
Additions to an Existing Structure	\$100 per square foot
Parking:	
First floor underground	\$28 per square foot
Second floor underground	\$32 per square foot
Third floor underground	\$35 per square foot
Purchase from City	\$13,000 per parking spot
Soft Costs:	22.5 percent of construction costs
Occupancy:	
One Year After Construction	50 percent
Thereafter	100 percent

*Rents are assumed to be NNN.

Source: Gruen Gruen + Associates

returns that can be earned in far less risky investments such as Treasury Bonds. The simulations of conditions with the parking requirement also show that the effect of the parking requirements is even more severe on the larger size project. Not only does the provision of parking increase the construction costs of a project dramatically, but it also reduces the amount of leasable space that can be built on the ground floor. We estimate that the need to provide for a ground floor ramp to below-ground parking garages can reduce the amount of buildable floor area on the ground floor by as much as 17 percent.

**SIMULATION OF CHANGES IN MARKET CONDITIONS
NEEDED TO MAKE COMMERCIAL REAL ESTATE DEVELOPMENT
IN DOWNTOWN PALO ALTO VIABLE GIVEN THE PROPOSED
PARKING REGULATIONS**

The results of the analysis discussed above indicate that the proposed parking regulations are likely to have a severely detrimental effect on the financial viability of new commercial real estate development in downtown Palo Alto. Therefore, we utilized the GG+A real estate simulation model to calculate the changes in office and retail rents that would be required in order to bring the attractiveness of investing, as expressed by the internal rates of return, back up to those earned today on commercial real estate development in downtown Palo Alto. The returns indicated in the base case analysis do appear to be close to the feasibility point so we utilized them as the targets to be achieved by increasing rents.



Table III-4 shows the current market rents for commercial and retail space in downtown Palo Alto and the office and retail rents that would be required on both the 5,000- and 10,000-square-foot lots in order to bring the seventh year after-tax internal rate of return back up to approximately 15 percent. Table III-4 shows that retail rents on the 5,000-square-foot lot would have to climb to at least \$31.50 per square foot per year and office rents would have to be \$34.75 per square foot per year in order to bring returns back up to 15 percent. These rent levels are approximately 31 percent above the current office and retail market rents being earned in downtown Palo Alto. Also, as shown in Table III-4, retail rents on the 10,000-square-foot lot would have to be as high as \$34.25 per square foot per year and office rents would have to be as high as \$37.75 per square foot per year in order to bring returns up to 15 percent. These retail and office rent levels for the 10,000-square-foot lot are approximately 43 percent above current market rents for office and retail space in downtown Palo Alto.

TABLE III-4

Current Rents and Those Required for
Development Feasibility if the Parking Requirement is Implemented

	Current Annual per- square-foot Rents *	Annual per-square-foot Rents Required to Maintain Development Feasibility if Parking Requirement is Implemented	
		5,000-square- foot Lot	10,000-square- foot Lot
	\$	\$	\$
Office	26.40	34.75	37.75
Retail	24.00	31.50	34.25

*Average annual rents for both retail and office space were estimated after several GG+A interviews with experienced Palo Alto realtors.

Source: Gruen Gruen + Associates



Gruen Gruen + Associates

CHAPTER IV

STRATEGY IMPACTS

EFFECTS OF PROPOSED PARKING REQUIREMENT

As indicated by the real estate analysis summarized in the previous chapters of this report, the direct short-run effect of the proposed parking strategy will be to make additions to the supply of commercial space in downtown Palo Alto through new construction infeasible but, in the face of demand increases, over the long-run, dramatic decreases in the determinants of the supply relationship tend to induce price increases. To gain further perspective on how this is likely to work out in downtown Palo Alto, we have considered the result of two equally unlikely extreme situations.

Table IV-1 presents a projection of the increases in retail square footage that would have to be provided if the trend of retail sales was to increase with no increase in sales per square foot. This projection gives one dimension of the pressures for new square footage in Palo Alto. It is a hypothetical projection since retailers will seek to expand their sales per square foot and landlords their rents. Table IV-2 presents the opposite equally hypothetical extreme; the increase in sales per square foot that would result if the trend of retail sales was fulfilled with no increase in retail square footage. It is very likely the future will fall in between these extremes. But, the implementation of

TABLE IV-1

Hypothetical Projection of Square Footage of Occupied Ground
Floor Retail Space Assuming No Increase in Sales per Square Foot:
1985-2000*

<u>1985</u>	<u>1990</u>	<u>1995</u>	<u>2000</u>
526,600	647,304	780,015	888,719

*Projected retail space is derived by dividing the projected trend of net retail dollar sales (figures presented in Table II-5) by the 1984 ratio of retail sales to square feet of ground floor, occupied retail space.

Source: Gruen Gruen + Associates



Gruen Gruen + Associates

TABLE IV-2

Projected Net Annual Taxable Sales
 per Square Foot of Occupied, Ground Floor Retail Space
for Downtown Palo Alto With Floor Space Constraint : 1985-2000
 (in 1984 dollars)

<u>Year</u>	<u>Projected Sales per Square Foot²</u> \$	<u>Percentage Change in Sales per Sq. Ft.</u> %
1985	125.0	-
1990	154.0	23.2
1995	183.0	46.4
2000	211.0	68.8

¹Floor space figure includes total ground floor area for retail use and total ground floor area for eating and drinking in May, 1983, as well as the approximately 22,500 square feet of floor space from the pipeline project allocated for retail use.

²Current dollars have been adjusted using the Commodities Less Food component of the Consumer Price Index. Source: U.S. Department of Commerce, Bureau of Economic Analysis, Business Statistics.

Source: Joint Sponsor Group of Property Owners and
 Retail Merchants of Downtown Palo Alto; City
 of Palo Alto Planning Department; Gruen Gruen
 + Associates.

the parking regulation will cause results much closer to the rental increases suggested by the analysis summarized in Table IV-2 than by the space expanding option shown in Table IV-1.

Because of the increase in the rental feasibility threshold induced by the proposed parking strategy, the long-run trend of downtown sales will be:

1. To grow more slowly than it would if the proposed parking strategy were not adopted. This slowing would be caused by an acceleration in the already-observed tendency towards a more narrowly-defined retail base and a slower rate of new construction than would exist in the absence of the parking requirement.
2. Because the imposition of the parking requirements would decrease the amount of new development that is likely to be developed at a given rent level the ability of the downtown to grow and respond to changing market conditions will be less vigorous with the parking requirements than it would be in their absence. Therefore, the ability of competing locations in the same retail market to evolve over time so as to effectively compete with downtown Palo Alto will be



somewhat enhanced. Thus, for example, the ability of locations in Menlo Park to evolve so as to eventually provide competing agglomerations will potentially be greater with, rather than without, Palo Alto's implementation of the proposed strategies. Whether such agglomerations will develop over time in Menlo Park or elsewhere so as to eventually compete more effectively with Palo Alto cannot be predicted, but the possibility for such evolutions will be increased by the proposed parking strategy.

3. Given the relative decrease in the amount of space likely to be developed at a given level of rents, both rents and sales per square foot will tend to rise faster with the implementation of the strategy than they would without such implementation. That is, as the supply relationship will be weaker with the strategy than without it, rents will increase as long as demand continues to increase at the same rate it would without the parking strategy. However, in the long run, if other agglomerations develop to compete with Palo Alto, demand might also be affected and, at that distant point, sales could begin to decline.

As suggested above, the tenant mix of the downtown retail establishment will be encouraged to become increasingly specialized. Generally, high volume and/or high margin retail merchants are less rent sensitive than neighborhood-serving and convenience goods purveyors. The proliferation of eating, drinking, and specialty establishments will be pushed along by the supply results of the strategy.

The potential bonding capacity of the parking district will increase but not as fast as it would if parking was not required. However, since the City's bonding capacity is not presently at its limit, the practical effect of this potential slowing of the increase may not be great. Assuming no limit is placed on increases in the bonding capacity before Proposition 13 strictures against reassessment, the ability of property within the district to pay for parking assessments will increase with increasing rents. However, as the growth in the total amount of space added is likely to be less with than without the proposed parking strategy, it is unlikely that total bonding capacity will be maximized by the strategy.

EFFECTS OF THE CITY'S COMMITMENT TO EXPAND PARKING

The positive effects of adding parking structures were discussed in Chapter II of this report. Its effect on the long-run trend of retail sales will be positive. The rate of change in tenant mix will be slowed but not stopped. Ground floor rental increases will be encouraged because sales will be enhanced. The bonding capacity will be benefited.



EFFECT OF GROWTH STRATEGY

If the growth limitation and the parking requirement are imposed simultaneously the effectiveness of the former will be offset by the latter for at least the next three to four years. However, if rents increase to make development feasible again, then the 350,000-square-foot limit on total additions could become effective. We say "could" because there is a danger that the vitality of the demand for downtown retailing may not be strong enough to sustain the effects of increased rents and, thus, some day could fall prey to competing locations that, as discussed above, may be able to grow more vigorously than they would if Palo Alto's growth were not effected by the parking requirements or growth strategy. But, if competing locations do not grow over time so as to compete with Palo Alto, then the 350,000-square-foot limit would grant monopoly rents to those who built up to that point as it helps preserve the present character of the downtown.

The limitation on building size works to set a threshold on the scale of development that can evolve in the downtown. The limitation is likely to be borne more by office space expandability than by the stunting of the retail space expansion. However, the limitation will tend to encourage the status quo for all uses as it is not likely that as many existing buildings can be replaced with this strategy as could be replaced if larger new structures were permitted. In the short-run, this preservation of the status quo will



help maintain a desirable "smaller scale feel". It is difficult to predict the long-run impact of the rigidity imposed by this strategy.

EFFECTS OF STRATEGY LIMITING THE USES ALLOWED IN GROUND FLOOR SPACE

Retail demand is enhanced by environments that encourage browsing and maintain consumer interest. From the perspective of overall retail demand, the ground floor retail strategy will encourage the long-run trend of retail sales. Also, by limiting the competition for ground floor space it will help reduce, though not eliminate, this shift of rent-sensitive neighborhood-serving uses out of the area. Bonding capacity may be lessened somewhat if retail rents are less than office rents, but as indicated previously, this effect is not likely to be dramatic.

However, there are two impacts of the ground floor limitation that are contrary to the above generalization. Both flow from the decrease in owner flexibility that is another result of such a strategy. Today, retail rents are only slightly less than office rents. Some owners or investors may fear that a slowdown in retail growth could occur and that such a slowdown would weaken the relative rental payments that could be obtained from retail tenants. Fears like these could raise the perceived risks and therefore the returns required to make the addition of space feasible. Should that be the case, the supply of new development would be further curtailed.



Perhaps an even greater and rather ironic effect is that landlords who now lease to office or other uses not on the ground floor list would hesitate to lease to remunerative retail tenants when space became vacant for fear of losing future flexibility. This would tend to happen if the strategy removes the "grandfathering" of space with existing non-retail uses if the non-retail tenant is replaced by a retail use. Thus, in terms of encouraging a shift to ground floor retail use such a strategy would be 100 percent effective only for newly-added space as landlords who now lease to office, banks and similar uses may seek to re-release to similar users, even if retailers offer higher rents, because they wish to preserve their long-run flexibility. Many landlords and real estate investors have learned to cherish the ability to alter uses because of the difficulty associated with predicting the future.

Gruen Gruen + Associates (GG+A) is a firm of urban economists, sociologists, statisticians and planners. Developers, public agencies, aligned professionals, attorneys and others involved in real estate asset management utilize GG+A research and consulting to make and implement investment, marketing, product, pricing and legal support decisions. The firm's staff has extensive experience and special training in the use of demographic analysis, survey research, econometrics, psychometrics and financial analysis to describe and forecast the markets for a wide variety of real estate projects.

Since its founding in 1970, GG+A has pioneered the use of economic, social and fiscal impact analysis. GG+A impact studies accurately and comprehensively portray the effects of public and private real estate developments, land use plans, regulations, annexations and assessments on the affected treasuries, taxpayers, consumers, other residents and property owners.



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APPENDIX A-6

AIR QUALITY METHODOLOGY

Caline3 Input Data and Assumptions

The Caline3 air quality model was used with the following input data:

Meteorology:

Windspeed 1 meter per second
Wind angle every 22.5 degrees around the compass
Stability class Class E
Mixing height 100 meters
Averaging time 1 hour
Surface roughness 100 cm
Ambient CO concentration -- 10.5 ppm for 1985; 8.5 ppm for 1995

Traffic:

Traffic volumes supplied by the traffic engineers. Speeds at locations where traffic congestions is expected were assumed to be 5 miles per hour (mph).

Emission Factors:

Emission factors were taken from The BAAQMD's draft publication "Air Quality Impact Assessment Guidelines for Projects and Plans," BAAQMD, San Francisco, CA, April 1985. These emission factors are based on the results of the CARB's EMFAC6C computer program. They are reproduced below:

CO emissions in grams per mile				
	5 mph	10 mph	15 mph	40 mph (freeway)
1985	88.01	47.31	33.72	14.75
1995	57.70	31.07	22.35	9.52

The local component of the Caline3 predictions was reduced by 16% for 1995 predictions to reflect the expected beneficial effects of the statewide I&M program. This figure applies to 1985 emissions rates while future emissions rates are expected to be reduced further. Since no reliable data on the amount of additional reduction was available it was not included in the analysis. That is, a 19 percent reduction from I&M was used in both 1985 and 1995 CO estimates.

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